Spill Prevention, Control, and Countermeasures Plan

Prepared for
REG Grays Harbor, LLC

May 2021

Prepared by
Parametrix

Spill Prevention, Control, and Countermeasures Plan

Prepared for

REG Grays Harbor, LLC
Biodiesel Processing Facility
3122 Port Industrial Road
Hoquiam, WA 98550

Prepared by

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CITATION

Parametrix. 2021. Spill Prevention, Control, and Countermeasures Plan.
Prepared by Parametrix, Bremerton, WA.

SPCC PLAN CERTIFICATION

REG GRAYS HARBOR, LLC APPROVAL:

REG Grays Harbor, LLC is committed to the prevention of discharges of oil to navigable waters and the environment, and maintaining the highest standards for spill prevention control and countermeasures through regular review, update, and implementation of this Spill Prevention, Control, and Countermeasures (SPCC) Plan for the Biodiesel Processing Facility located at 3122 Port Industrial Road, Hoquiam, Washington. REG management, authorized by the undersigned, has committed the manpower, equipment, materials, and monetary expenditures required to expeditiously control and remove quantities of oil discharged that may be harmful.

Signature: _____

Name: Aaron Leatherman
Title: Plant Manager
Address: 3122 Port Industrial Road, Hoquiam, Washington 98550
Phone: (360)-500-4237

ENGINEER CERTIFICATION

I hereby certify that I am familiar with the provisions of Chapter 40 Part 112 of the Code of Federal Regulations (CFR) and Chapter 173-180 of the Washington Administrative Code (WAC), I have examined the facility, and I have prepared this SPCC Plan, as published on ***April 12, 2021***, in accordance with good engineering practices. This certification in no way relieves REG Grays Harbor, LLC, or any other owner or operator of the facility of their duty to prepare, supplement, update, and fully implement this plan in accordance with the requirements of 40 CFR Part 112 and WAC 173-180.

March 2016 SPCC Plan Prepared By:

Julie Brandt, PE, Parametrix

September 2017, November 2019, *and April 2021* Amendment Prepared By:

BRANDON R. BALL
STATE OF WASHINGTON
28460
REGISTERED
PROFESSIONAL ENGINEER
4/12/2021

Brandon R. Ball, PE, Parametrix

Checked By:

Julie Brandt, PE, Parametrix

Approved By:

Dwight Miller, PE, Parametrix

RECORD OF AMENDMENT

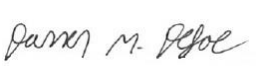
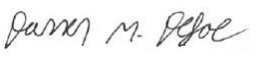
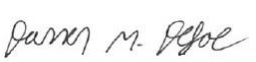
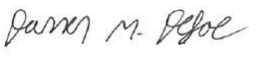
REG Grays Harbor, LLC will complete a review and evaluation of this document at least **once every 5 years** and, if needed, amend it within 6 months of the review to include more effective prevention and control technology. REG will document its completion of the review and evaluation on this log. Any technical amendments to the Spill Prevention, Control, and Countermeasures Plan will be certified by a Professional Engineer on a separate certification page indicating the section(s) of the Plan amended.

I have completed review and evaluation of the Spill Prevention, Control, and Countermeasures Plan for the REG Grays Harbor Biodiesel Processing Facility on the date indicated below and will amend the Plan as a result of the review if indicated below.

Name of Reviewer (Type of Review)	Signature of Most Recent Reviewer	Date Review Completed	Plan to Be Amended?	Date Amendment Complete
Sheri Lott, P.E. (Original Plan Development)		03/01/2007	☐ Yes / ☒No	n/a
Roger Ainsworth (Annual Review)		12/01/2007	☐ Yes / ☒No	n/a
Roger Ainsworth (Annual Review)		12/02/2008	☐ Yes / ☒No	n/a
Blaine Hardy, P.E. (Technical Amendment)		09/04/2009	☒Yes / ☐ No	09/04/2009
Roger Ainsworth (Annual Review)		12/01/2010	☐ Yes / ☒No	n/a
Roger Ainsworth (Annual Review)		12/22/2010	☐ Yes / ☒No	n/a
Roger Ainsworth (Annual Review)		12/23/2011	☐ Yes / ☒No	n/a
Aaron Leatherman (Accuracy Review)		12/28/2012	☐ Yes / ☒No	n/a
Julie Brandt, P.E. (Technical Amendment)		02/12/2014 (Draft)	☒Yes / ☐ No	04/03/2014 (Final)
Darren DeLoe (Accuracy Review)	Darren M. DeLoe	03/10/15	☐ Yes / ☒ No	n/a
Julie Brandt, P.E. (Ownership Update)	(see SPCC Plan certification page)	n/a	☐ Yes / ☐ No	09/16/2015
Julie Brandt, P.E. (Added Glycerin Tank 120-D-3000)	(see SPCC Plan certification page)	03/11/2016	☒ Yes / ☐ No	03/23/2016

RECORD OF AMENDMENT (CONTINUED)

I have completed review and evaluation of the Spill Prevention, Control, and Countermeasures Plan for the REG Grays Harbor Biodiesel Processing Facility on the date indicated below and will amend the Plan as a result of the review if indicated below.

Name of Reviewer (Type of Review)	**Signature of Reviewer**	**Date Review Completed**	**Plan to Be Amended?**	**Date Amendment Complete**
Darren DeLoe (5 Year Update)		03/05/16	☒ Yes ☐ No	03/23/16
Brandon Ball (Technical Amendment shown in bold italics text throughout)		09/15/2017	☒ Yes ☐ No	09/15/2017
Darren DeLoe (Spill team member change/acid change from Sulfuric to HCL)		05/10/2018	☒ Yes ☐ No	05/10/2018
Darren DeLoe (Update to oil tank volumes based on max shell cap.)		11/11/19	☒ Yes ☐ No	11/11/19
Darren DeLoe (Update to ***5.2 Integrity Testing and 7 Facility Security, and other Misc., items.***)		***06/19/2020***	☒ Yes ☐ No	***06/19/2020***
Brandon Ball (Added oil spill risk assessment matrix, new citric acid tank & other Misc. items)		***04/12/2021***	☒ Yes ☐ No	***04/12/2021***
Darren DeLoe (Added minor clarifying language to: description of shutdown during a vessel transfer, facility security, oil spill risk assessment)		***04/26/2021***	☒ Yes ☐ No	***05/10/2021***
			☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	

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ACRONYMS AND ABBREVIATIONS

API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTs	aboveground storage tanks
CFR	Code of Federal Regulations
CMMS	Computerized Maintenance Management System
DCS	Distributed Control System
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESD	emergency shutdown device
facility	Biodiesel Processing Facility
FRP	Facility Response Plan
ICP	Integrated Contingency Plan
REG	REG Grays Harbor, LLC
MCC	Motor Control Center
MSDS	material safety data sheets
NRC	National Response Corporation
PE	Professional Engineer
POA	pneumatically operated actuator
Polaris	Polaris Applied Sciences, Inc.
PSAP	Puget Sound and Pacific Railroad
PSM	Process Safety Management
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasures
TPIC	terminal person in charge
WAC	Washington Administrative Code

1. INTRODUCTION

1.1 BACKGROUND

REG Grays Harbor, LLC (REG) operates the Biodiesel Processing Facility (facility) in Hoquiam, Washington (Figure 1-1), near the mouth of the Chehalis River. The facility produces biodiesel from triglycerides (vegetable oil, animal fats, and used cooking oil) by using methanol and sodium methylate, a catalyst. Triglycerides are delivered to the facility and the biodiesel/diesel finished product leaves the facility via 3 modes of transportation: waterfront, rail, and truck. The facility has the ability to store up to approximately 19 million gallons and has been in operation since 2007.

This SPCC Plan was originally prepared by Parametrix in March 2016. Amendments were made in September 2017, November 2019, June 2020, and April 2021 to reflect recent improvements made to the facility. The 2017 through 2021 amendments are shown as bold, italics text throughout the document and bold, dark lines shown on drawings.

1.2 PURPOSE OF THIS PLAN

This Spill Prevention, Control, and Countermeasures (SPCC) Plan has been prepared for the facility to describe procedures, protocols, and engineering controls that are in place to minimize impacts on human health and the environment from potential oil spills. The SPCC Plan encompasses three basic components:

1. The practices devoted to the prevention of oil spills,
2. The plan of containment should a spill occur, and
3. The plan for removal and disposal in the event of spilled oil.

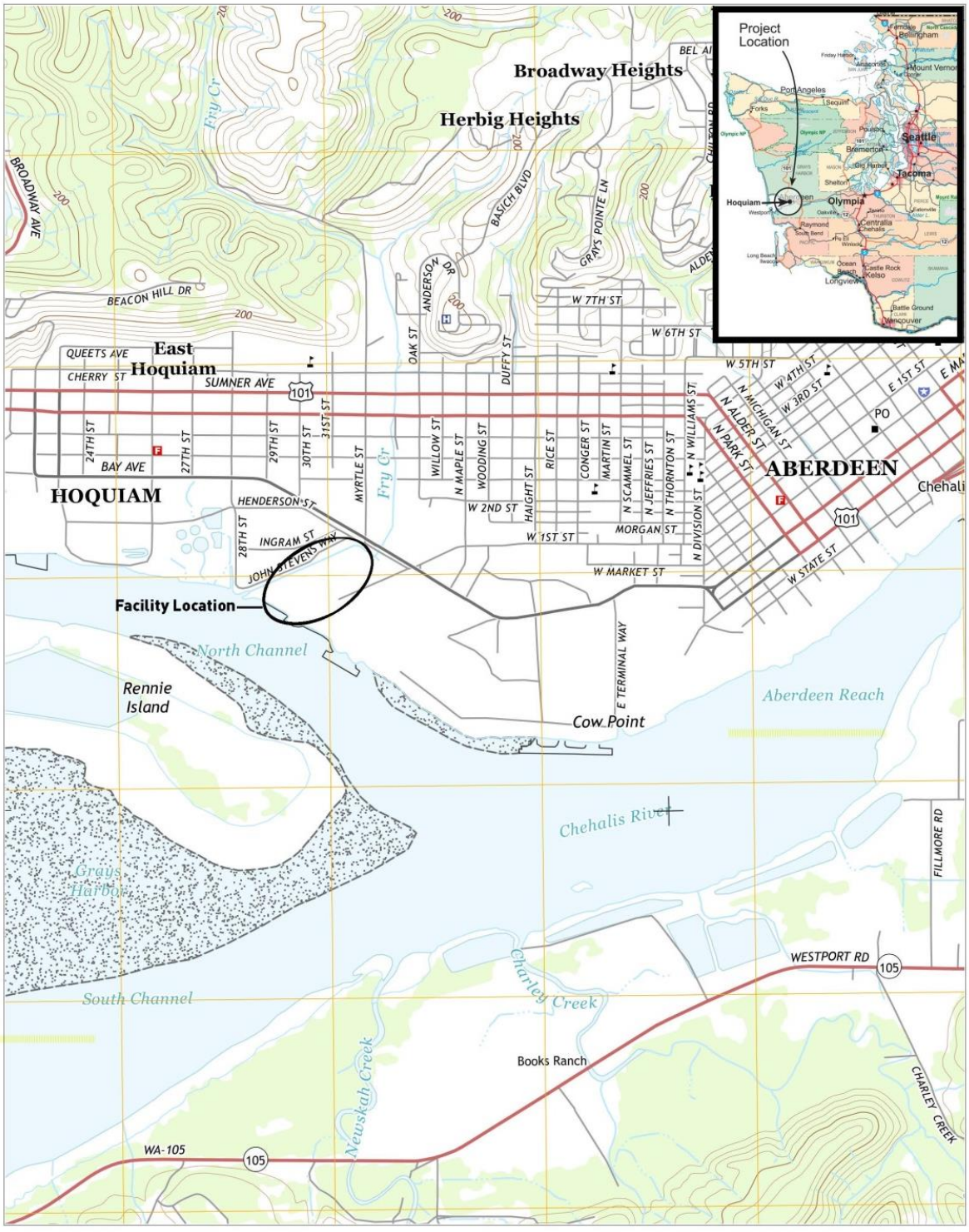
This SPCC Plan was prepared based on the U.S. Environmental Protection Agency's (EPA's) Oil Pollution Prevention regulations specified in Title 40 of the Code of Federal Regulations (CFR) Part 112 (Part 112) and Washington Administrative Code (WAC) 173-180. These regulations establish the procedures, methods, and equipment to prevent, control, and clean up the discharge of oil from non-transportation-related oil processors and handlers, including facilities that handle petroleum, fuel oil, vegetable oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

1.3 CONFORMANCE WITH FEDERAL AND STATE REQUIREMENTS

The facility is subject to the requirements of Part 112 and WAC 173-180 due to the capacity of the on-site aboveground storage tanks (ASTs) storing oil or oil products (hereafter referred to as "oil") and the potential for oil to discharge to tributaries of waters of the state via adjacent stormwater structures, nearby surface water features, and/or surface runoff. The facility has the ability to store approximately 19 million gallons of oil. Section 112.7 requires owners or operators of facilities that store oil in aboveground containers that are each greater than 55 gallons and have an aggregate capacity greater than 1,320 gallons to prepare and implement an SPCC Plan. In addition, Ecology has identified the facility as a Class 1 Facility as defined by WAC 173-180 Part C, which includes large facilities such as refineries, refueling terminals, and oil pipelines located on or near the navigable waters of the state, and requires development and implementation of a spill prevention plan based on the requirements of WAC 173-180 Part F.

As required by Section 112.7 and WAC 173-180, this SPCC Plan identifies operation and maintenance procedures to prevent spills, systems and structures to contain spills should they occur, and cleanup and disposal procedures to collect oil and protect soil and/or waters of the state. This SPCC Plan is organized so that procedures can be easily followed and systems are

readily usable in an emergency. The sequence in which information in this Plan is presented is sometimes different from the sequence in Section 112.7 and WAC 173-180. However, as required by Section 112.7, Table 1-1 provides cross-references between this SPCC Plan and the Section 112.7 and WAC 173-180 requirements.



3122 Port Industrial Road,
Hoquiam WA 98550
Longitude 123051'17"W, Latitude 46058'04"N

Figure 1-1
Spill Prevention, Control, and Countermeasures Plan
REG Grays Harbor, Washington
Vicinity Map

Table 1-1. Federal and State Requirements Cross-Referenced with this Plan

40 CFR Part 112 – Oil Pollution Prevention Requirements			Location in This Plan
Subpart A - General Requirements			
§112.1		Applicability	Section 1
§112.3		Requirement to prepare plans	Certification page; Section 1
§112.4		Amendment by regional administrator following discharge	(not applicable)
§112.5		Review and amendment by owners	Record of Amendment page, Section 1.5
§112.6		Qualified facilities plans	(not applicable)
§112.7		SPCC Plans - General format, sequence, and approvals	Certification Page, Table of Contents, this table
(a)		General format and content of plan	(see subsections below)
	(1)	Conformance with requirements	Section 1.3
	(2)	Non-conformance or deviations	Section 1.3
	(3)	Facility layout; spill prevention, containment, and response	Sections 2, 3, and 4
	(4)	Clear spill reporting information	Section 1.4, 4.2
	(5)	Clear procedures for emergency spill response	Section 1.4, 4.1
(b)		Prediction of spill direction, flow, and total quantity	Table 2-2, Sections 2.4 and 3.2.1
(c)		Secondary containment	Section 3.2
(d)		Explanation if controls are not practicable	(not applicable)
(e)		Inspections, tests, and records	Section 5
(f)		Personnel and training	Section 6
(g)		Site security	Section 7
(h)		Tank truck loading/unloading	Sections 2.2, 3.1, and 3.2
(i)		Brittle fracture evaluation	Section 5.1.3
(j)		State and local requirements	Section 1.3
(k)		Qualified equipment	(not applicable)

Table 1-1. Federal and State Requirements Cross-Referenced with this Plan (continued)

40 CFR Part 112 – Oil Pollution Prevention Requirements			Location in This Plan
Subpart B - Onshore Oil Facilities and Subpart C - Animal, Fish, and Plant Oil Facilities			
§§ 112.8 (Subpart B) and 112.12 (Subpart C) - SPCC Plans			
(a)		Meet §112.7 requirements and this section	(See above for §112.7)
(b)		Facility drainage and controls	Table 2-2, Sections 2.4 and 3.2.1
(c)		Bulk storage containers	(see subsections below)
	(1)	Materials and construction	Sections 2.2 and 3.2
	(2)	Secondary containment	Section 3.2
	(3)	Rainwater containment	Section 3.2
	(4)	Buried tank corrosion protection	(not applicable)
	(5)	Partially buried tank corrosion protection	(not applicable)
	(6)	Bulk storage tank inspections	Sections 3.1 and 5.1
	(7)	Heating coil steam water	Sections 2.2 and 3.2
	(8)	Liquid level controls	Sections 3 and 5.1
	(9)	Treatment facility inspections	Sections 3.1 and 5.1
	(10)	Container leak correction	Section 5
	(11)	Mobile storage containment	Section 3
(d)		Transfers, pumping, and processes	Sections 2.2, 3.1, 3.2, and 4
Subpart D - Facility Response Plans			
§112.20		Facility Response Plans	Section 1.4
§112.21		Facility response training and drills/exercises	Section 6
STATE: WAC 173-180 FACILITY OIL HANDLING STANDARDS			**Location in This Plan**
Part F Prevention Plans for Class 1 Facilities			
§600		Applicability	Section 1
§610		Preparation	Entire Plan
§620		Format & contingency combination	Table of Contents, this table
§630		Content	Table of Contents, this table
(1)		Submittal agreement, authorization, certification	Certification Page; Section 1
(2)		Amendment log	Record of Amendment page
(3)		Table of contents	Table of Contents (pages i-iii), this table
(4)		Purpose, scope, relationship to other regulations	Section 1
(5)		Updates - procedures and timing	Certification Page; Section 1.5
(6)		Compliance with Federal Oil Pollution Act	Certification Page
(7)		Compliance with RCW 88.46	Certification Page
(8)		Training	Section 6

Table 1-1. Federal and State Requirements Cross-Referenced with this Plan (continued)

STATE: WAC 173-180 FACILITY OIL HANDLING STANDARDS		Location in This Plan
Part F Prevention Plans for Class 1 Facilities (continued)		
(9)	Contingency plan per WAC 173-182	Sections 1, 2, 3, 4, and 6
(10)	Alcohol and drug use awareness and treatment	Section 6.1
(11)	Maintenance and inspection program	Section 5
(12)	Spill prevention, containment, diversions, and drainage	Section 3
(13)	Site security	Section 7
(14)	Historical discharges (excess of 25 barrels or 1,050 gallons)	Section 4.2
(15)	Spill risk assessment	Sections ***2*** and 3, ***Table 2-2, and Appendix C***
(16)	Spill risk mitigation	Section 3
(17)	Contingency plan incorporation by reference	Section 1.4
§640	Plan submittal	Certification Page; Section 1.5
§650	Plan review and approval	Certification Page, Record of Amendment page, Section 1.5
§660	Staff access to and familiarity with the plan	Sections 1 and 6
§670	Plan update timing	Certification Page, Record of Amendment page, Section 1.5

Section 112.7 allows facilities to deviate from the prescribed SPCC Plan methodology for certain requirements, including some pertaining to security, vehicle movement, vehicle drips, and field-constructed tank ruptures. This SPCC Plan does not deviate from any prescribed methods in Section 112.7.

In addition to the requirements to prepare a spill prevention plan, WAC 173-180-710 requires all Class 1 facilities to have an approved contingency plan as required by WAC 173-182. Also, due to its location immediately adjacent to navigable waters, the facility meets the Federal classification of one that "could reasonably be expected to cause substantial harm to the environment by discharging into or on the navigable waters or adjoining shorelines" and is subject to facility response plan requirements outlined in 40 CFR 112.20. A completed copy of the Certification of the Applicability of the Substantial Harm Criteria Checklist is included in the facility's Integrated Contingency Plan (ICP). The contingency plan and response plan compliance are discussed in the following section of this SPCC Plan.

1.4 RELATIONSHIP TO RESPONSE PLAN

The facility's ICP ***(FRP)*** is a supplement to this SPCC Plan; therefore this SPCC Plan **must be located with a copy of the ICP at all times**. The facility's ICP and Oil/Hazardous Materials Transfer Operations Manual (Polaris 2013) were prepared to meet the requirements of 33 CFR Part 154, 33 CFR Part 156, 40 CFR Part 109, 40 CFR Part 112, and WAC 173-182. The SPCC Plan lists other hazardous chemicals and hazardous waste being stored and used for facility operations, which are covered by the ICP and Oil/Hazardous Materials Transfer Operations Manual. This SPCC Plan covers the onshore facility process operations, oil storage, and the truck and rail loading/unloading activities and is to be used in conjunction with the ICP and Oil/Hazardous Materials Transfer Operations Manual. The facility's ICP and

Oil/Hazardous Materials Transfer Operations Manual cover the marine transfer operations conducted at Terminals 1 and 2 and **spill response procedures for the entire facility not covered in this Plan**.

1.5 PLAN UPDATES

Ecology must be notified in writing as soon as possible and prior to completion of any significant change that could affect the SPCC Plan. If the change will reduce the facility's ability to implement the SPCC Plan, REG must also provide a schedule for the return of the SPCC Plan to full implementation capability.

Significant changes include, but are not limited to:

- A change in the owner or operator of the facility;
- A change in the types of oil handled at the facility;
- A 5 percent or greater change in the facility's oil handling capacity;
- Non-compliance with the Federal Oil Pollution Act of 1990;
- Non-compliance with state financial responsibility requirements developed under Chapter 88.40 Revised Code of Washington (RCW);
- A substantial change in oil spill prevention technology installed at the facility, or other substantial changes to facility equipment, operations, personnel procedures, or any other change, including compliance with amended or new rules adopted by Ecology, which substantially affects the level of risk described pursuant to WAC 173-180-630;
- Commissioning or decommissioning of tanks;
- Replacement, reconstruction, or movement of tanks;
- Reconstruction, replacement, or installation of piping systems;
- Construction or demolition that might alter secondary containment structures; and
- Revision of standard operation or maintenance procedures at facilities.

Changes that are not considered significant as long as they do not increase the risk of a spill include, but are not limited to:

- Minor variations (less than 5 percent) in oil handling capacity;
- Maintenance schedules; and
- Operating procedures.

The facility must update the SPCC Plan's list of discharges, as required by WAC 173-180-630, within 30 calendar days after an oil discharge by the facility in excess of 25 barrels (1,050 gallons).

Within 30 calendar days of making a change to the SPCC Plan, the facility owner or operator must distribute the amended page(s) of the SPCC Plan to Ecology and other SPCC Plan holders.

All SPCC Plans must be reviewed by Ecology at least every 5 years pursuant to WAC 173-180-650. These plans must be submitted for reapproval unless the plan holder submits a letter requesting that Ecology review the SPCC Plan already in Ecology's possession. The SPCC Plan holder must submit the SPCC Plan or send a letter at least 65 calendar days in advance of the SPCC Plan's expiration date.

All technical amendments shall be reviewed and certified by a Professional Engineer (PE). Non-technical amendments (i.e., phone numbers, contact names, etc.) can be made by the owner/operator. In addition, the SPCC Plan shall be reviewed and updated at a minimum

frequency of every 5 years. Amendments and updates shall be recorded on the Record of Amendment form included at the beginning of this Plan.

This SPCC Plan was originally prepared by Parametrix in March 2016. Amendments were made in September 2017, November of 2019, June of 2020, and April of 2021 to reflect recent improvements made to the facility. The 2017 through 2021 amendments are shown as bold, italics text throughout the document and bold, dark lines shown on drawings.

2. FACILITY DESCRIPTION

2.1 GENERAL INFORMATION AND FACILITY CONTACTS

General facility information and contacts are summarized in Table 2-1. Details regarding the physical site layout, oil-handling process, and location of oil storage containers are discussed in the sections below.

Emergency evacuation procedures are posted throughout the facility. They include facility emergency contact numbers. Copies of these procedures and a list of REG staff members responsible for managing spill response activities are included in the ***REG*** ICP.

Table 2-1. Facility Information and Contacts

Name	REG Grays Harbor
Site Address	3122 Port Industrial Road, Hoquiam, WA 98550
Site Telephone Number	(360) 500-4230
Spill Response Coordinator (Primary)	Aaron Leatherman |Office: (360) 500-4237 | Cell: (360) 300-6227 Plant Manager, REG Grays Harbor Biodiesel Production Facility
Spill Response Coordinator (Back-up)	Darren DeLoe | Office: (360) 500-4234 | Cell: (360) 300-6109 Coordinator, EH&S, REG Grays Harbor Biodiesel Production Facility
Owner/Operator Contact	Derick Winkel | (515) 239-8049 Executive Director, Manufacturing Operations, REG Grays Harbor, LLC P.O. Box 888, Ames, Iowa 50010
Oil Storage Capacity	***Approximately 19 million gallons***
Coordinates (Latitude/Longitude)	46º 58’ 04” N, 123º 51’ 17” W
Nearest Natural Watercourse	Chehalis River
Hours of Operation	24 hours a day, 7 days a week

2.2 SITE LAYOUT

The facility site is located in the city of Hoquiam at the Port of Grays Harbor Terminal 1 (see Figure 1-1). The facility began full-scale operation on August 6, 2007. The facility includes pipelines from Terminal 1 and Terminal 2, a tank farm, process area, rail spurs, truck loading/unloading areas, and hazardous material storage (Figure 2-1). The majority of the facility is uncovered and open to precipitation. The facility’s finished ground surfaces consist of concrete, asphalt, and gravel. The facility includes a production plant (located in the process area) that produces biodiesel from triglycerides (vegetable oil, animal fats and used cooking oil) by using methanol and sodium methylate, a catalyst. Triglycerides are delivered to the facility and the finished biodiesel/diesel product leaves the facility via three modes of transportation (waterfront, rail, and/or truck). Waterfront Terminals 1 and 2 can receive up to Panamax class vessels and/or barges. Puget Sound and Pacific (PSAP) is the short line railroad that provides railcar service to REG. Various trucking companies are available and contracted for feedstock deliveries and/or biodiesel sales. Feedstock and biodiesel/diesel is stored in up to eight American Petroleum Institute (API) 650 storage tanks, holding ***2,190,000*** gallons each.

2.2.1 Tank Farm

The tank farm, which consists of a concrete berm surrounded by a gravel surface, stores process inputs and finished products (Figure 2-2). The oil and fuel are stored separately in eight ***2,190,000***-gallon storage tanks (Table 2-2) complying with API 650. Two ***510,000***-gallon tanks are able to store oil, fuel, or glycerin. Also, a 300,000-gallon storage tank of glycerin, a 100,000-gallon storage tank for bottoms (to be re-used in the process or sold as Industrial Fuel), two 8,700-gallon hydrochloric acid storage tanks, a 9,000-gallon storage tank of glycerin, a 15,000-gallon glycerin decanter vessel, a 10,000-gallon catch tank***, and a 8,700-gallon double-wall polyethylene tank storing citric acid*** are located on the site in the tank farm. Methanol is stored in a ***510,000***-gallon storage tank and sodium methylate is stored in a 100,000-gallon tank in the southeastern section of the tank farm area surrounded by a separate concrete dike within the overall tank farm concrete berm. Also included in the tank farm are associated aboveground transfer piping, pumps, trench drain, sumps, sump pumps, and tote storage.

2.2.2 Process Area

The process area consists of process equipment including aboveground transfer piping, pumps, heaters, heat exchangers, dryers, decanters, reactors, distillation column, coolers, condensers, hot oil heater, media filters, sump, and sump pump for converting the vegetable oil into various grades of biodiesel (Figure 2-3). The process area includes raw product storage including biodiesel, vegetable oil, glycerin, methanol, bottoms, industrial water, and various water treatment chemicals. The process area is equipped with concrete pads with a trench drain and sump. ***The north section of the process area behind the oil dryer (210-T-1000) was expanded to hold new equipment, including coolers, pumps, and condensers (Figure 2-3). The expanded area is contained by a concrete berm (connected to the existing Process Area containment berm) and drains to the existing process area sump. A 3,000-gallon diesel storage tank was added north of the process area in the location shown in Figure 2-3. The tank has double-wall containment and leak detection.***

2.2.3 Filter Press Building

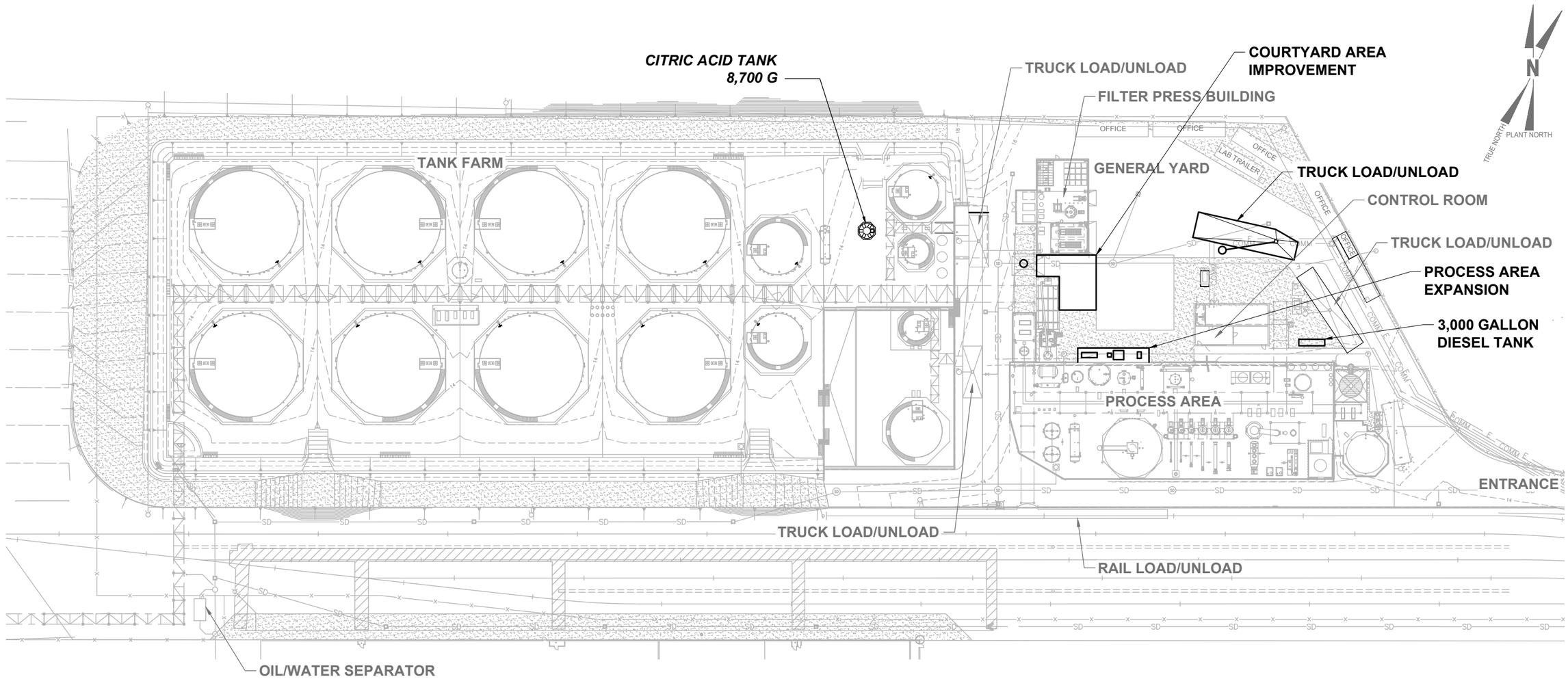
Adjacent to the process area is an enclosed building called the filter press building. The filter press building contains two filter presses, a 5,000-gallon tank for mixing filter media and non-combustible process liquids, and a 3,000-gallon tank for filtered product storage. The filter press building is situated on a concrete pad with a partial berm. ***This project is in progress at time of submission of the 2017 amendment. The courtyard area around the Filter Press Building will be paved with asphalt, and sloped to drain to catch basins as shown in Figure 2-3. The catch basins drain to a blind sump with sump pump that conveys flow to the Methanol Containment Area.***

2.2.4 Truck Load/Unload Pads

Arriving trucks are directed to one of the ***four*** truck load/unload areas ***displayed in Figure 2-3***. The truck load/unload pads consist of concrete pads sloped to a catch basin centered in each pad, sump, and sump pump. ***The sump pumps are controlled manually to convey any spills occurring during unloading at the Methanol Containment Area or at the Process Area Sump.*** The areas adjacent to each pad consist of asphalt and gravel surfaces.

2.2.5 Rail Load/Unload

The facility operates five rail lines for the loading and offloading of vegetable oil, biodiesel, and hazardous materials. Tracks 1 through 4 are for oil and biodiesel and consist of a gravel surface. Track 5 is for sodium methylate ***and methanol*** (flammable and corrosive) and is surrounded by a concrete berm for containment.



LEGEND:

- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN
- STORM DRAIN LINE
- CONTAINMENT TRENCH AND PUMP
- CHAINLINK FENCE
- ASPHALT BERM
- RAILROAD
- CONTOUR
- GRAVEL
- PAVEMENT (ASPHALT/CONCRETE)

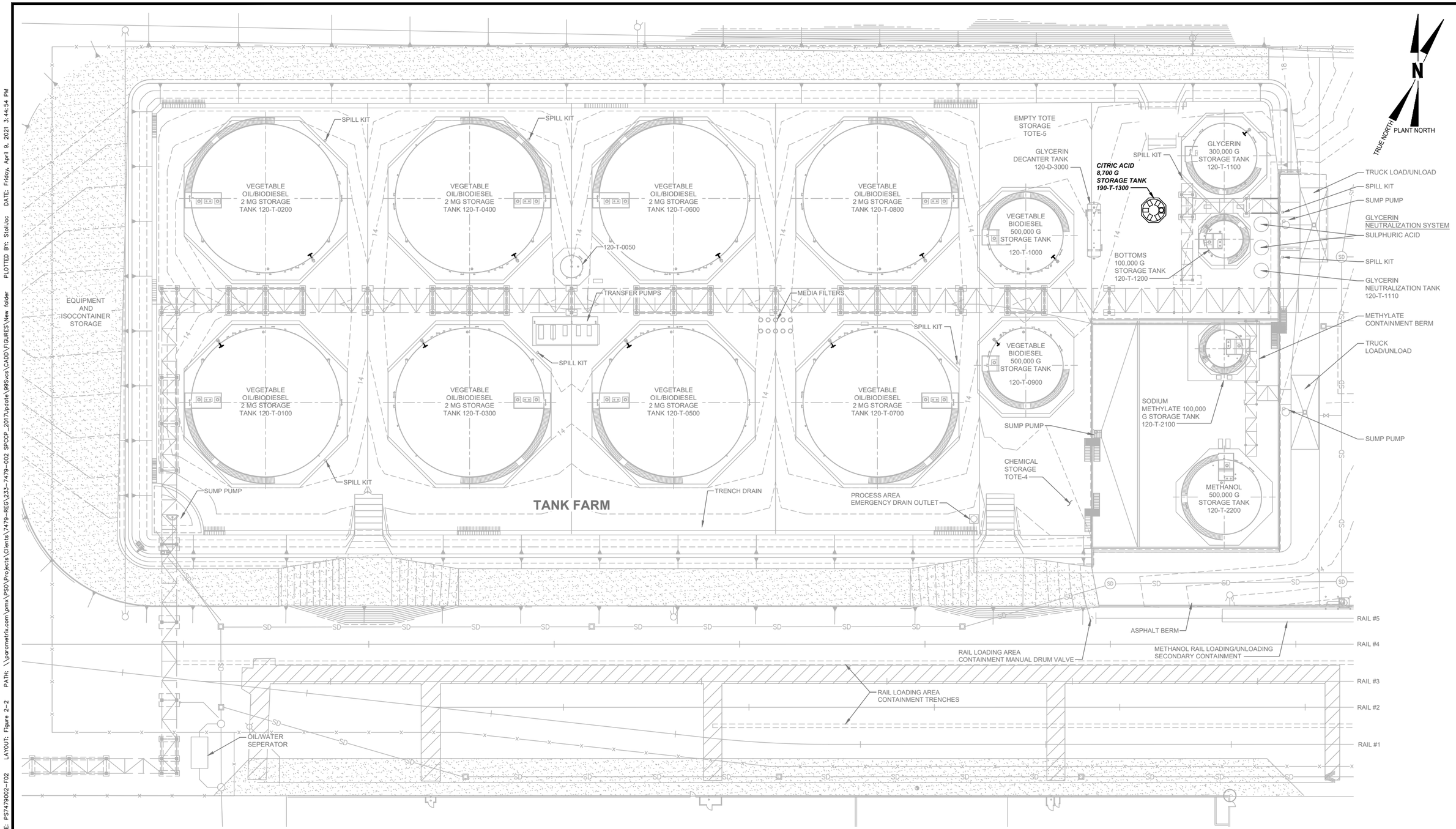
Parametrix DATE: Apr 09, 2021 FILE: PS7479002-F02

0 80
SCALE IN FEET

BOLD LINES REPRESENT SPCC PLAN 2017 TO 2021 AMENDMENTS

Figure 2-1
Spill Prevention, Control, and Countermeasures Plan
REG Grays Harbor, Washington
Overall Facility Site Plan

FILE: PS7479002-F02 LAYOUT: Figure 2-2 PATH: \\parametrix.com\prmx\PSO\Projects\Clients\7479-REG\233-7479-002 SPCCP_2017Update\999vcs\CADD\FIGURES\New folder PLOTTED BY: Stolluac DATE: Friday, April 9, 2021 3:44:54 PM



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BOLD LINES REPRESENT SPCC PLAN 2017 TO 2021 AMENDMENTS

Figure 2-2
Spill Prevention, Control, and Countermeasures Plan
REG Grays Harbor, Washington
Tank Farm Plan

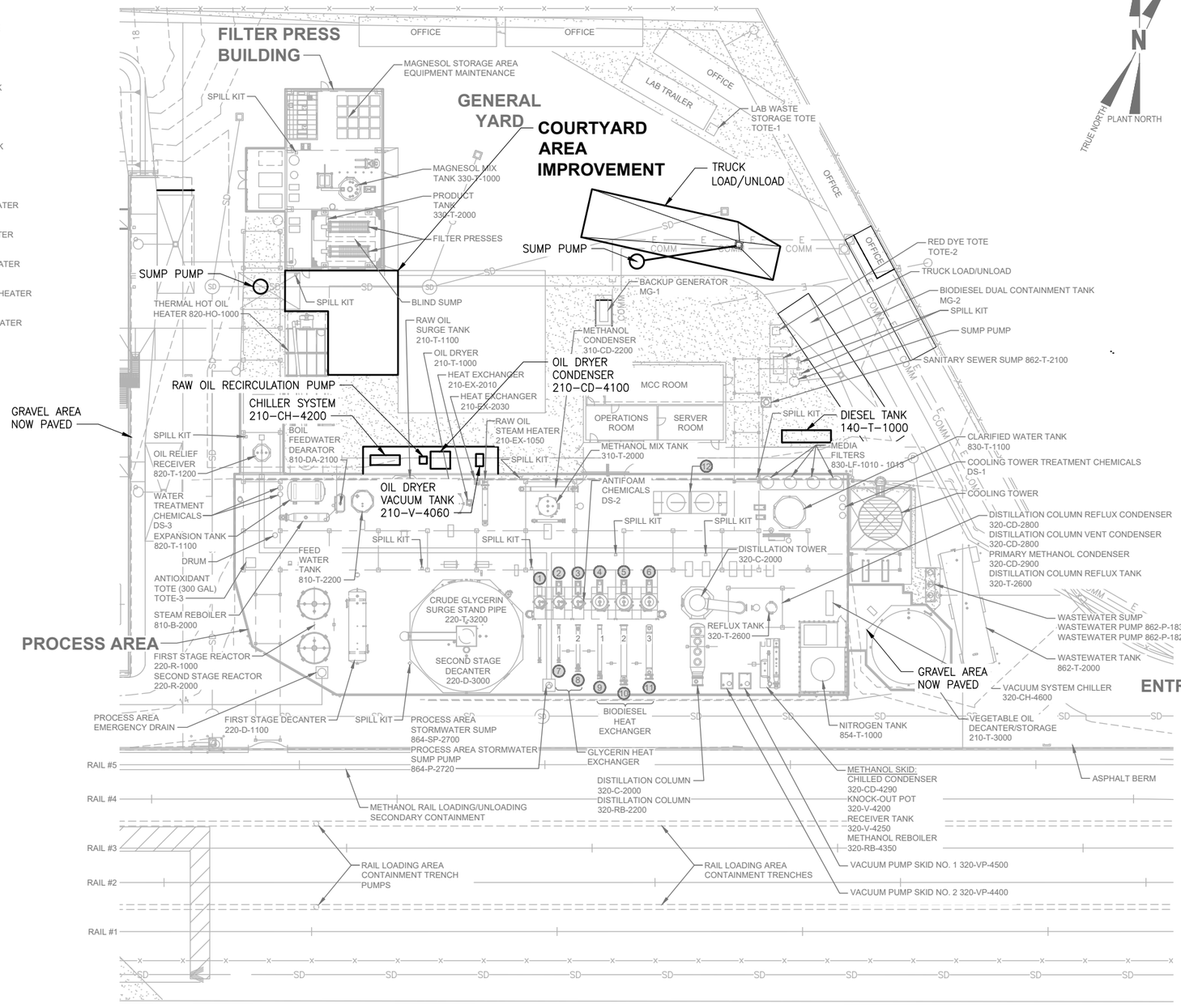
NOTES:

1. SECOND STAGE REACTOR FLASH TANK 220-T-2500
2. FIRST STAGE GLYCERIN FLASH TANK 310-T-1100
3. SECOND STAGE GLYCERIN FLASH TANK 310-T-1300
4. FIRST STAGE BIODIESEL FLASH TANK 310-T-0100
5. SECOND STAGE BIODIESEL FLASH TANK 310-T-0200
6. THIRD STAGE BIODIESEL FLASH TANK 310-T-0300
7. FIRST STAGE GLYCERIN FLASH PREHEATER 310-EX-1110
8. SECOND STAGE GLYCERIN FLASH HEATER 310-EX-1310
9. FIRST STAGE BIODIESEL FLASH PREHEATER 310-EX-0110
10. SECOND STAGE BIODIESEL FLASH PREHEATER 310-EX-0210
11. THIRD STAGE BIODIESEL FLASH PREHEATER 310-EX-0310
12. BOTTOMS PRODUCT COOLER 320-EX-5300
    BIODIESEL PUMP AROUND COOLER 320-EX-2400

LEGEND:

GRAVEL

PAVEMENT (ASPHALT/CONCRETE)



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BOLD LINES REPRESENT SPCC PLAN 2017 TO 2021 AMENDMENTS

Figure 2-3
Spill Prevention, Control, and Countermeasures Plan
REG Grays Harbor, Washington
General Yard, Process Area, and Filter Press Building

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2.2.6 Terminals 1 and 2

Terminal 1 has a concrete area that supports the 6-inch and 12-inch transfer pipes with upstream and downstream walkways that lead to bollards used to tie off vessels and barges. Terminal 2 is a larger concrete wharf used for vessel imports and exports. Marine transfer operations include barge loading at Terminal 1 and ship (up to Panamax class) unloading/loading of biodiesel, vegetable oil and glycerin at Terminals 1 and 2.

Two pipelines connect each terminal with the tank farm; a 12-inch- and a 6-inch-diameter pipeline at Terminal 1 and a 16-inch- and a 12-inch-diameter pipeline at Terminal 2. These pipelines connect the terminals with the tank farm (above grade on pipe racks) and are routed across a pipe bridge over the existing rail lines. The 16-inch and 12-inch pipes are routed (at grade on concrete block pipe supports) along the water's edge to Terminal 2. The 12-inch and 6-inch pipes are routed (at grade on pipe supports) to Terminal 1. Appendix A provides a piping diagram of transfer lines to Terminals 1 and 2.

All pipes are carbon steel, insulated, and electrically heat traced. All lines leading to Terminals 1 and 2 are constructed of A106 Grade B seamless pipe and tested according to American Society of Mechanical Engineers B31.3 process piping standards. In the event a leak is detected, all transfer operations would be stopped until repairs or adequate preventative measures could be put into place. Transfer operations would resume only after such measures have been inspected to assure leaks have been repaired. Marine transfer operations and applicable regulatory compliance are discussed in the ***REG ICP*** and the Oil/Hazardous Materials Transfer Operations Manual, and are not part of this SPCC Plan.

2.3 FACILITY OIL STORAGE INFORMATION

Oil, petroleum products, hazardous materials, and general chemicals at the facility are generally stored within the tank farm and process areas. Information on products manufactured, stored, and used at the facility is summarized in Table 2-2. All storage tanks are built to API Standard 650. Tank inspections, repairs and alterations comply with API Standard 653. The AST and process equipment designations were identified by REG and are used throughout this SPCC Plan. The facility has a total oil storage capacity of approximately 19 million gallons.

An oil/water separator is used to treat facility drainage (i.e., stormwater) prior to discharge into the Chehalis River as allowed by an Ecology stormwater discharge permit. Discharge from the facility includes stormwater collected from the paved areas outside the loading rack/unloading areas containment and bulk storage containment dikes. No external oil tanks are associated with the oil/water separator. This equipment is used to meet certain secondary containment requirements under 40 CFR Part 112, as described later in this Plan. Thus, the capacity of the oil/water separator is not counted towards the facility's total storage capacity. Appendix A provides details on the drainage system connected to the oil/water separator.

2.4 PREDICTION OF FLOW DIRECTION *AND RISK ASSESSMENT*

EPA requires that facilities with a history of oil discharge predict the general direction, volume, and flow rate for a potential spill. The facility has no documented spills since operation began August 6, 2007; however, Table 2-2 provides a general description of ***spill risk including*** potential spill flow direction. ***Additional information regarding the facility oil spill risk assessment is presented in Appendix C. The 2017 through 2021 amendment information in Table 2-2 is shown in bold, italics text.***

Table 2-2. Tank List *and Risk Assessment Data*

Designation	Name	Content	Storage Capacity (Gallons)	Description	Predicted Spill Direction	Containment
Filter Press Building						
330-T-1000	Magnesol Mix Tank	Biodiesel	5,040	Steel, aboveground vertical tank	South	Concrete Berm
330-T-2000	Product Tank	Biodiesel	3,000	Steel, aboveground horizontal vessel	South	Concrete Berm
Outside/General Yard						
(mobile)	Biodiesel Red Dye	Red Dye	275	Storage tote	#N/A	None Required
(mobile)	Laboratory Gray Water Tote	Sink Water	275	Storage tote	#N/A	None Required
140-T-0500	Mobile Equipment Fuel Tank	Biodiesel	500	Steel, double-walled aboveground horizontal tank	#N/A	Double-Walled
880-EG-0100	Emergency Generator	Diesel	350	Steel, double-walled aboveground horizontal tank	#N/A	Double-Walled
832-CT-1000	Cooling Tower	Industrial Water	18,500	Concrete, aboveground vertical tank	#N/A	None Required
862-T-2000	Wastewater Tank	Industrial Water	40,000	Steel, aboveground horizontal tank	Southeast	None Required
140-T-1000	***Diesel Tank***	***Diesel***	***3,000***	***Steel, double-walled, aboveground horizontal tank***	***East***	***Double-walled***
Process Area						
(mobile)	Antioxidant Tote	Antioxidant	275	Storage tote	(varies)	Concrete Berm
(mobile)	Cooling Tower Chemicals	Water Treatment Chemicals	***3 drums (55 ea)***	HDPE drums	(varies)	Concrete Berm
(mobile)	Glycerin Defoamer	Defoamer	***275***	***Storage totes***	(varies)	Concrete Berm
(mobile)	Steam System Chemicals	Water Treatment Chemicals	***575***	***Storage totes***	(varies)	Concrete Berm
210-EX-1050	Raw Oil Steam Heater	Biodiesel Raw Oil	450	Steel, aboveground horizontal vessel	South	Concrete Berm
210-T-1000	Oil Dryer	Biodiesel Raw Oil	8,000	Steel, aboveground vertical tank	South	Concrete Berm
210-T-1100	Raw Oil Surge Tank	Biodiesel Raw Oil	35,000	Steel, field-constructed aboveground vertical tank	South	Concrete Berm
210-T-3000	Vegetable Oil Decanter	Vegetable Oil	150,000	Steel, field-constructed aboveground vertical tank	South	Concrete Berm
220-D-1100	Decanter - First Stage	Biodiesel	8,000	Steel, aboveground horizontal vessel	South	Concrete Berm
220-D-3000	Decanter - Second Stage	Biodiesel	215,000	Steel, field-constructed aboveground vertical tank	South	Concrete Berm

Table 2-2. Tank List *and Risk Assessment Data* (continued)

Designation	Name	Content	Storage Capacity (Gallons)	Description	Predicted Spill Direction	Containment
Process Area (continued)						
220-R-1000	Reactor - First Stage	Biodiesel	16,000	Steel, aboveground vertical tank	South	Concrete Berm
220-R-2000	Reactor - Second Stage	Biodiesel	16,000	Steel, aboveground vertical tank	South	Concrete Berm
220-T-2500	Reactor Flash Tank - Second Stage	Biodiesel	750	Steel, aboveground vertical tank	South	Concrete Berm
220-T-3200	Crude Glycerin Surge Stand Pipe	Glycerin	470	Stand pipe	South	Concrete Berm
310-CD-2200	Methanol Condenser	Methanol	440	Steel, aboveground horizontal vessel	South	Concrete Berm
310-EX-0110	Biodiesel Flash Preheater - First Stage	Biodiesel	400	Steel, aboveground horizontal vessel	South	Concrete Berm
310-EX-0210	Biodiesel Flash Preheater - Second Stage	Biodiesel	700	Steel, aboveground horizontal vessel	South	Concrete Berm
310-EX-0310	Biodiesel Flash Preheater - Third Stage	Biodiesel	650	Steel, aboveground horizontal vessel	South	Concrete Berm
310-EX-1110	Glycerin Flash Preheater - First Stage	Glycerin	200	Steel, aboveground horizontal vessel	South	Concrete Berm
310-EX-1310	Glycerin Flash Preheater - Second Stage	Glycerin	225	Steel, aboveground horizontal vessel	South	Concrete Berm
310-T-0100	Biodiesel Flash Tank - First Stage	Biodiesel	1,700	Steel, aboveground vertical tank	South	Concrete Berm
310-T-0200	Biodiesel Flash Tank - Second Stage	Biodiesel	1,700	Steel, aboveground vertical tank	South	Concrete Berm
310-T-0300	Biodiesel Flash Tank - Third Stage	Biodiesel	1,700	Steel, aboveground vertical tank	South	Concrete Berm
310-T-1100	Glycerin Flash Tank - First Stage	Glycerin	800	Steel, aboveground vertical tank	South	Concrete Berm
310-T-1300	Glycerin Flash Tank - Second Stage	Glycerin	800	Steel, aboveground vertical tank	South	Concrete Berm
310-T-2000	Methanol Recovery Tank	Methanol	3000	Steel, aboveground vertical tank	South	Concrete Berm
320-C-2000	Distillation Column	Biodiesel	3,500	Steel, aboveground vertical vessel	South	Concrete Berm
320-CD-2800	Distillation Column Reflux/Vent Condenser	Biodiesel	1100	Steel, aboveground vertical vessel	South	Concrete Berm

Table 2-2. Tank List *and Risk Assessment Data* (continued)

Designation	Name	Content	Storage Capacity (Gallons)	Description	Predicted Spill Direction	Containment
Process Area (continued)						
320-CD-2900	Primary Methanol Condenser	Methanol	250	Steel, aboveground vertical vessel	South	Concrete Berm
320-CD-4290	Methanol Skid Chilled Condenser	Methanol	125	Steel, aboveground horizontal vessel	South	Concrete Berm
320-EX-2400	Biodiesel Pump Around Cooler	Biodiesel	1,000	Steel, aboveground horizontal vessel	South	Concrete Berm
320-EX-5300	Bottoms Product Cooler	Bottoms (Waste Product)	200	Steel, aboveground horizontal vessel	South	Concrete Berm
320-RB-2200	Distillation Column Reboiler	Biodiesel	3,750	Steel, aboveground horizontal vessel	South	Concrete Berm
320-RB-4250	Methanol Skid Reboiler	Methanol	575	Steel, aboveground horizontal vessel	South	Concrete Berm
320-T-2600	Distillation Column Reflux Tank	Biodiesel	1,100	Steel, aboveground vertical tank	South	Concrete Berm
320-V-4250	Methanol Skid Receiver Tank	Methanol	350	Steel, aboveground horizontal tank	South	Concrete Berm
810-B-2000	Steam Reboiler	Industrial Water	950	Steel, aboveground horizontal vessel	South	Concrete Berm
810-DA-2100	Boiler Feedwater Deaerator	Industrial Water	370	Steel, aboveground horizontal tank	South	Concrete Berm
810-T-2200	Feed Water Tank	Industrial Water	3,000	HDPE, aboveground vertical tank	South	Concrete Berm
820-T-1100	Oil Expansion Tank	Therminol	5,000	Steel, aboveground horizontal tank	South	Concrete Berm
820-T-1200	Oil Relief Receiver	Therminol	1,000	Steel, aboveground vertical tank	South	Concrete Berm
830-LF-1010	Media Filter	Industrial Water		Steel, aboveground vertical tank	South	Concrete Berm
830-LF-1011	Media Filter	Industrial Water		Steel, aboveground vertical tank	South	Concrete Berm
830-LF-1012	Media Filter	Industrial Water		Steel, aboveground vertical tank	South	Concrete Berm
830-LF-1013	Media Filter	Industrial Water		Steel, aboveground vertical tank	South	Concrete Berm
830-T-1100	Clarified Water Tank	Industrial Water	10,000	Steel, aboveground vertical tank	South	Concrete Berm
854-T-1000	Nitrogen Storage Tank	Liquid Nitrogen	7,500	Steel, aboveground vertical tank	West	Concrete Berm
210-CH-4200	***Chiller System***	***Propylene Glycol and Water Mixture***	***250***	***Steel, aboveground horizontal vessel***	***South***	***Concrete Berm***
210-CD-4100	***Oil Dryer Condenser***	***Water***	***120***	***Steel, aboveground vertical vessel***	***South***	***Concrete Berm***
210-V-4060	***Oil Dryer Vacuum Water Separator Tank***	***Water***	***50***	***Steel, aboveground vertical tank***	***South***	***Concrete Berm***

Table 2-2. Tank List *and Risk Assessment Data* (continued)

Designation	Name	Content	Storage Capacity (Gallons)	Description	Predicted Spill Direction	Containment
Tank Farm						
(mobile)	Drum Storage	Various	20+/- drums (55ea)	Misc. Storage drum Including but not limited to: Heat Transfer Fluid, Water Chemicals	Southwest	Concrete Berm
(mobile)	Empty/Clean Drum Storage	None	30+/- (55 ea)	Storage tote	Southwest	Concrete Berm
(mobile)	Empty/Clean Tote Storage	None	35+/- (275 ea)	Storage drum	Southwest	Concrete Berm
(mobile)	Regulated Hazardous Waste Storage	Hazardous Waste	6 drums (55 ea)	Storage drums in Covered Shelter	Southwest	Concrete Berm
(mobile)	Tote Storage	Various	65+/- (50-275 ea)	Misc. Storage tote Including but not limited to: Anti-oxidant, In-process material, Lab Trial material	Southwest	Concrete Berm
120-T-0050	Catch Tank	Veg. Oil / Biodiesel	10,000	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0100	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0200	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0300	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0400	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0500	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0600	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0700	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0800	Storage Tank	Veg. Oil / Biodiesel	***2,190,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-0900	Storage Tank	Veg. Oil / Biodiesel	***510,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm

Table 2-2. Tank List *and Risk Assessment Data* (continued)

Designation	Name	Content	Storage Capacity (Gallons)	Description	Predicted Spill Direction	Containment
Tank Farm (continued)						
120-T-1000	Storage Tank	Veg. Oil / Biodiesel	***510,000***	Steel, Field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-1100	Storage Tank	Glycerin	300,000	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-1200	Storage Tank	Bottoms (Waste Product)	100,000	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-2008	Glycerin Neutralization System	Hydrochloric Acid	8,700	HDPE, aboveground vertical double walled tank	Southwest	Concrete Berm
120-T-2009	Glycerin Neutralization System	Hydrochloric Acid	8,700	HDPE, aboveground vertical double walled tank	Southwest	Concrete Berm
120-T-2100	Storage Tank	Sodium Methylate	100,000	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-2200	Storage Tank	Methanol	***510,000***	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-T-1110	Glycerin Neutralization System	Glycerin	6,500	Steel, field-constructed aboveground vertical tank	Southwest	Concrete Berm
120-D-3000	Glycerin Decanter Tank	Glycerin	15,000	Steel, aboveground horizontal vessel	Southwest	Concrete Berm
190-T-1300	***Citric Acid Tank***	***Citric Acid***	***8,700***	***Polyethylene, double wall, vertical, above ground***	***Southwest***	***Concrete Berm***

3. DISCHARGE PREVENTION

3.1 DISCHARGE PREVENTION PRACTICES

3.1.1 Vessel Transfer Operations

Emergency shutdown controls are located aboard the vessels loading and unloading at the facility through Terminals 1 and 2. The discharging party (e.g. the vessel crew for raw material delivery; the facility personnel for finish product sale) is responsible for emergency shutdown during transfers; however, the facility also has the ability to shut down transfers using the emergency shutdown devices (ESDs) located at the dock-end of pipelines where hose connections are made. There is a 10-inch pneumatically operated actuator (POA) on each of the pipelines' headers at Terminals 1 and 2. These are to be locally operated by the terminal person in charge (TPIC) during transfers. These valves can close in 3 seconds. In addition, there are POAs on the:

- 16-inch vegetable oil IN line, just inside the tank farm;
- 12-inch biodiesel OUT line downstream of the load-out pump, located centrally in the tank farm; and
- 6-inch hazardous material IN/OUT line, located in the methanol containment area.

These POAs are opened/closed by an operator in the facility control room via the Distributed Control System (DCS).

Vessel Transfer Operation leak detection relies on flow rate indicators, line pressure gauges, high & low level alarms on tanks, indicators on transfer and control valves, and direct visual observation of the pipeline from terminal personnel (i.e. TPIC), and continuous video monitoring of pipeline from operators in the facility control room***, per WAC 173-180-340(11)(a&b)***. In the event that the video system used for continuous monitoring fails***, or is rendered ineffective*** during a vessel transfer operation, a plant employee ***or third-party contractor*** will conduct a direct visual observation of the pipeline every 15 minutes per WAC 173-180-340(11)(a).

Terminal transfer lines are equipped with pressure gauges that feed information to the facility DCS. Sustained pressure readings above or below the standard operating range of 20-40 PSI will prompt an investigation from the facility Operations staff. During an active transfer, if transfer line pressure readings trip a high-pressure alarm (60 PSI) or low-pressure alarm (5 PSI) and no known cause can be identified, transfer operations will be stopped and the transfer lines checked for leaking issues.

The facility also is equipped for automatic shutdown at high tank levels. All storage tanks are equipped with high and low level alarms. The high alarm is triggered by two monitoring devices (radar and vibrating fork; Rosemount Models 5402AF1I54SPVCAM1C1 and 2120D1DC1I5DE, respectively) and will trigger at ***98 percent*** full.

The high alarm will close the 16-inch vegetable oil line POA to stop the flow into the tank farm. These facility measures are preventative and are not to be used as primary shutdown controls or procedures. REG personnel are present during all transfer of materials to and from the ASTs.

3.1.2 Tank Truck and Rail Car Transfer Operations

Tank truck and tank car loading procedures meet the minimum regulatory requirements established by the U.S. Department of Transportation. Personnel engaged in oil transfer operations adhere to the following:

- Loading and unloading activities are attended by qualified facility personnel who are trained in emergency procedures, placarding requirements, and grounding/bonding procedures.
- During transportation of oil, facility personnel are alert to possible container or tanker truck damage due to unstable loading conditions or potential collisions with obstacles.
- In truck load/unload areas, the catch basin and associated sump for each area must be manually pumped prior to loading or unloading activities.
- In truck load/unload areas, catch basin covers are put in place prior to transfer activities. The catch basin covers are stored in a signed and visible location for use by facility personnel.
- During oil transfers to or from tank trucks, wheel chocks are used to prevent vehicles from departing before flexible or fixed oil transfer lines are completely disconnected.
- Prior to beginning oil transfer, drip trays, absorbent pads, or other precautionary containment are placed beneath the tank truck at the transfer location. Metal drip trays are placed beneath the tank cars along tracks 1 through 4 to connect them to the concrete trench sumps. Track 5 is equipped with a permanent concrete containment area.
- Tanks receiving product are observed and documented by the operator prior to filling to ensure the tank has adequate space for the product being delivered. Adequate headspace at the top of the tank is left to allow for product expansion.
- During oil transfer, all connections and transfer points are carefully monitored to ensure that there are no leaks or open drain valves. The operator ensures complete closure of all valves once transfer is complete.
- Prior to departure of any truck or rail car, the lowermost drain and all outlets of such vehicles are closely examined for leakage and, if necessary, tightened, adjusted, or repaired to prevent liquid leakage while in transit.
- Smoking within the fenced parameter of the facility is strictly prohibited.
- Instructions and emergency telephone numbers are posted so that they are readily available in the event of a spill.

3.2 CONTROL AND PRECAUTIONARY CONTAINMENT

3.2.1 Facility Drainage

3.2.1.1 General

In general, the facility site is flat. However, the site has been slightly sloped to provide drainage to stormwater catch basins located throughout the facility. Drainage of the process area and tank farm is shown in Figure 2-1. Appendix A provides a piping diagram of the facility drainage system. Drainage outside the improved areas of the facility drains to the Chehalis River directly adjacent to the facility. All paved areas at the site drain to stormwater catch basins located throughout the facility and ultimately to the 5,000-gallon facility oil/water separator. Manually

operated sump pumps are located in the tank farm, methanol storage area, processing area, ***courtyard area,*** truck load/unload pads, and the rail load/unload area to prevent major spills from leaving the applicable portion of the facility. The sumps and containment areas are drained manually immediately, whenever possible, following visual inspection to confirm that no visible sheen is present, in order to keep the containment areas free of standing water and to provide ample containment volume. There are no control valves associated with the catch basins located throughout the general yard areas of the site.

3.2.1.2 Tank Truck Transfer Areas

The tank truck load/unload areas (see Figure 2-3) are relatively flat, but any spills within the areas would flow to the catch basin and associated sump; or, in the event of a catastrophic tank failure, the spill would potentially flow to the stormwater catch basins located within the areas and the 5,000-gallon oil/water separator. The catch basin, associated sump, facility stormwater management system, and oil/water separator provide capacity large enough to contain 100 percent of the largest tank truck compartment.

3.2.1.3 Rail Transfer Areas

Products loading or unloading from rail cars are protected from spills by either a concrete containment area, as in the case of track 5, and earthen swales and concrete trench sumps with drip trays protect from spills for tracks 1 through 4. The two concrete trench sumps run parallel to the rail line and are located between tracks 1 and 2 and tracks 3 and 4.

3.2.1.4 Oil/Water Separator

The oil/water separator is designed to separate and retain oil at the facility. The oil/water separator has a total capacity for oil/water mixture of 5,000 gallons. The oil/water separator can be used in the event of a large discharge (greater than 1,300 gallons) to provide additional emergency containment of up to 4,000 gallons (in addition to the operating oil storage volume). The maximum amount of oil potentially discharged outside the tank truck transfer area sloped depression is estimated at roughly 4,500 gallons (from the complete failure of the largest cell of a tanker truck). A spill of this volume outside the diked or bermed areas will be primarily contained by catch basin covers deployed prior to loading and unloading activities and by deploying sorbent material upon discovery of the spill. Additional oil containment capacity is provided by the 5,000-gallon oil/water separator. The regular operating oil storage capacity is approximately 500 gallons.

Best management practices are used to minimize the amount of solids and oil that flow into the oil/water separator. Facility personnel are instructed to avoid and address small spills using sorbents to minimize runoff of oil into the oil/water separator. The oil/water separator is inspected monthly as part of the scheduled inspection to check the level of water within the separator and measure the depth of bottom sludges and floating oils. Floating oil is removed by a licensed waste collector when it reaches a thickness of 6 inches or annually.

3.2.2 Secondary Containment

Methods of secondary containment at this facility include a combination of structures (e.g., dike, berm, built-in secondary containment), drainage systems (e.g., oil/water separator), and land-based spill response (e.g., drain covers, sorbents) to prevent oil from reaching navigable waters and adjoining shorelines. All ASTs at the facility are of steel construction and compatible with the products stored in them. In accordance with Part 112, WAC 173-180, and guidance provided by Ecology, secondary containment capacity meets or exceeds 100 percent of the largest tank volume within the containment plus precipitation from a 25-year, 24-hour storm event (Ecology 2005). Secondary containment volumes are presented in Appendix B.

3.2.2.1 Tank Farm

The ASTs in the tank farm consist of field-fabricated tanks constructed of single-walled bare steel. ***One exception to this is a new 8,700-gallon double-wall polyethylene storage tank for storing citric acid.*** In accordance with 40 CFR Part 112 and guidance provided by EPA, the tank farm is equipped with a secondary containment capacity meeting or exceeding 100 percent of the largest tank volume within the containment plus precipitation from a 25-year, 24-hour storm event (Appendix B). The berm/dike area drains to two blind sumps each equipped with a manually operated pump to remove any stormwater and spilled material to the facility stormwater management system. Facility standard operating procedures are in place to minimize oil and hazardous material transfers into the stormwater management system.

3.2.2.2 Methanol Storage Area

The ASTs used in the methanol storage area consist of field-fabricated tanks constructed of single-walled bare steel. The methanol storage area is adjacent to the tank farm footprint and the dike walls surrounding the methanol storage area are two feet higher than the tank farm berm elevation, effectively isolating it from the tank farm. The size of the existing methanol storage berm is not large enough to contain 100 percent of the largest tank volume plus precipitation from a 25-year, 24-hour storm event if the largest tank's full volume is used. To meet the requirements of 40 CFR Part 112 and WAC 173-180 for secondary containment storage, REG has updated the methanol containment area with a permanent overflow notch in the containment berm to provide a passive hydraulic overflow from the methanol containment area to the tank farm containment area. This connection provides full secondary containment of the methanol area plus the required precipitation volume. The floor of the methanol storage area drains to a sump equipped with a manually operated pump to remove any stormwater and spilled material to the facility stormwater management system. Facility standard operating procedures are in place to minimize oil and hazardous material transfers into the stormwater management system.

3.2.2.3 Process Area

The ASTs and equipment in the process area consist of field-fabricated tanks constructed of single-walled bare steel and shop-fabricated tanks, vessels, and equipment. The main process area is enclosed by a separate concrete berm, known as the process pad. The process area drains to a blind sump equipped with a manually operated pump to remove stormwater and/or spilled material. The process area sump pump can either discharge to the facility oil/water separator or to the facility waste water tank. The bermed process pad is also hydraulically connected to the tank farm containment area through an 18-inch emergency overflow pipe (Figures 2-1 and 2-2). In the event of a larger spill that could not be contained by the process pad berm, overflow would be conveyed to the tank farm secondary containment area and stored there for cleanup. Facility standard operating procedures are in place to minimize oil and hazardous material transfers into the stormwater management system.

The floor and walls of the containment structures discussed above are constructed of poured concrete reinforced with steel. The concrete dike was built under the supervision of a structural engineer and in conformance with his specifications to be impervious to oil. The facility is never unattended and therefore any spill into the diked area would be detected before it could escape any containment structures.

The 350-gallon emergency generator tank (MG-1), 500-gallon biodiesel tank (MG-2)***, and 3000-gallon diesel storage tank*** are of double-wall construction and provide intrinsic secondary containment for 110 percent of the tank capacity. Because the secondary containment is not open to precipitation, this volume is sufficient to fully contain the product in the event of a leak from the primary container. The interstitial space between the primary

and secondary containers is inspected monthly to detect any leak of product from the primary container. The container is equipped to prevent overfills as required by EPA and Ecology; however, general containment is provided for potential tank overfills. This containment is accomplished through the facility drainage system and the oil/water separator, which provide environmentally equivalent protection.

3.2.2.4 Rail Yard

A concrete containment area is provided under the rail load/unload rack on track 5 to contain spills of hazardous materials. The concrete containment area is equipped with a manually operated valve to allow facility personnel to either contain spilled material for proper disposal or direct collected stormwater to the oil/water separator. Facility standard operating procedures are in place to minimize oil and hazardous material transfers into the stormwater management system.

Portable drip pans are used to contain small leaks from any piping/hose connections used at the rail load/unload area along tracks 1 through 4. The drip pans route any spillage to one of two concrete trenches located adjacent to the rail load/unload area. Together, the concrete trenches provide containment for the maximum capacity of the largest compartment of a rail car (30,000 gallons).

3.2.2.5 Equipment Fueling and Tote/Drum Unloading Operations

A spill occurring during fuel transfer to the backup generator would potentially result in a spillage of several gallons or more of diesel fuel. Fuel spilled would flow towards the catch basins located in the area near the backup generator. If fuel were to enter a catch basin it would ultimately flow to the oil/water separator located before the outfall to the Chehalis River. During these fueling operations, best management practices, including spill equipment and drain covers, are available and required to be used by the facility personnel.

A spill occurring during tote and drum handling or unloading operations would potentially result in a spillage of up to 275 gallons of material. Material spilled would flow towards the catch basin located in the area near where the handling or unloading operations are being conducted. If fuel were to enter a catch basin it would ultimately flow to the oil/water separator located before the outfall to the Chehalis River. During the tote/drum handling or unloading operations, best management practices, including spill equipment and drain covers, are available and required to be used by the facility personnel.

3.2.3 Spill Control Equipment

Spill control equipment is located throughout the facility (see Figures 2-2 and 2-3). The facility ICP contains the inventory of the spill control equipment. There are two levels of spill response equipment located throughout the facility:

- Spill kit drums: Contain granular sorbent, sorbent booms, sorbent pads, drain covers, signs, and an overpack drum.
- Spill response trailers: Kept at the west end of the property near Terminal 1 and includes traffic cones, brooms, shovels, rags, empty drums, personal protective equipment (gloves, eye protection, coveralls), a spill kit drum, and large floating oil containment booms.

4. COUNTERMEASURES/SPILL RESPONSE

Oil spills of any volume should be responded to as quickly as possible. Spill prevention practices and quick response are critical in reducing or preventing the impacts of oil spills. Factors involved in spill response include the following:

- The quantity of the spill.
- The potential for discharge to surface waters.
- The time involved responding to and cleaning up spills.
- The cost of cleaning up spills, particularly when the assistance of a spill response contractor is required.
- The potential involvement of regulatory agencies (Ecology, EPA, U.S. Coast Guard).

4.1 DISCOVERY AND RESPONSE

Oil and petroleum spills should be responded to with the following priorities:

1. Personnel safety,
2. Fire prevention,
3. Environmental protection, and
4. Equipment protection.

All spills are to be responded to and reported in accordance with the procedures outlined in the ICP. Spill response contacts and emergency evacuation procedures are posted throughout the facility. These posters show a flowchart of procedures to be followed in the event of a spill or if a spill is discovered.

4.2 NOTIFICATION

4.2.1 Requirements

If a discharge occurs in excess of 1,000 gallons in a single event, or if two discharges occur in "harmful quantities" (violate a water quality standard and/or cause a sheen or emulsion to be deposited) within any 12-month period, then copies of this SPCC Plan will be submitted to Ecology and the EPA.

Reportable quantities of hazardous materials are determined from the material safety data sheets (MSDS) or 40 CFR Part 112. With respect to oil or oil-related products, Ecology regulations (adopted from federal policy) define a reportable or harmful quantity as any quantity equal to or greater than 42 gallons (one barrel or 1,050 gallons) of oil spilled on the ground surface. If oil is spilled or discharged into waters of the state, or in a location from which it is likely to escape into waters of the state, any quantity of oil that would produce a visible film, sheen, oily slick, oily solids, or coat aquatic life, habitat, or property with oil must be reported.

4.2.2 Contacts

The following telephone numbers (Table 4-1) for emergency contacts shall be used in the event of a spill.

Table 4-1. Emergency Contacts

Organization/Contact	Phone
Terminal Personnel (Facility Response Team)	
Qualified Individual (QI) - Aaron Leatherman, Plant Manager	(360) 500-4237
Alternate QI - Mike Prall, Operations Supervisor	(360) 500-4236
Facility Security Officer - John Doucette	(253) 273-8289
Coordinator, Environmental Health and Safety - Darren DeLoe	(360) 500-4234 or (360) 300-6109 cell
Emergency Services	
Fire Department	911
Police Department	911
Spill Response Contractors	
* **+** Cowlitz Clean Sweep (Spill Response Contractor)	(888) 423-6316 or (360) 532-4309
* NRC Environmental Services (Spill Response Contractor)	(800) 33-SPILL or (800) 337-7455
* Witt O'Brien's Response Management, Inc. (Spill Management Team)	(985) 781-0804
State and Federal Agencies	
* **+** Washington Emergency Management Division	(800) 258-5990 or (800) OILS-911
* **+** National Response Center	(800) 424-8802
+ Washington Department of Ecology (DOE), Southwest Region	(360) 407-6300
U.S. Coast Guard (Grays Harbor)	(360) 268-0121
U.S. Coast Guard (Portland)	(503) 240-9311
+ Environmental Protection Agency (EPA) Region 10	(206) 553-1263
Washington Department of Fish and Wildlife	(360) 534-8233
Port of Grays Harbor	
PGH Facility Security Officer	(360) 580-0134
Port of Grays Harbor Security	(360) 310-0198
Port of Grays Harbor Maintenance	(360) 310-0196
Port of Grays Harbor Deputy Director	(360) 580-0130
Misc. Services	
* **+** Hoquiam Fire Department	(360) 532-5700 Ext 262
Grays Harbor Emergency Medical Services Council	(360) 532-2067
Grays Harbor Community Hospital	(360) 532-8330
* **+** # Emergency & Risk Manager (Grays Harbor County)	(360) 249-3911

* required notification for any oil spill to water

+ to be notified in case of spill that threatens or enters groundwater or a spill to ground greater than 42 gallons

Grays Harbor County EMD will activate the county EOC and issue emergency warnings, as appropriate

4.2.3 Spill Response Contractors

REG maintains contracts with Cowlitz Clean Sweep and NRC Environmental Services in compliance with regulations for the ICP. Both companies are certified primary response contractors or oil spill response organizations. They are qualified to provide oil spill response personnel and equipment to meet planning standards for small or average most-probable discharges, medium or maximum most-probable discharges, and worst-case discharges. The response capability provided by both contractors exceeds the planning standards established by Ecology. Each contractor maintains spill trailers at Terminal 1 that contain various spill control and cleanup equipment including skimmers and booms. Cowlitz Clean Sweep also maintains a fleet of vacuum trucks in their warehouse and yard adjacent to the REG facility.

4.3 DISPOSAL

Wastes generated due to a spill at the facility will be managed in accordance with the facility ICP. Materials that are used during a spill clean-up operation, such as granular sorbent or sorbent booms, will be immediately placed in a properly labeled drum and stored in the waste receiving area until the drum can be properly characterized for disposal. Quantities of spill clean-up materials used will be documented to facilitate inventory tracking and replenishment.

Wastes resulting from a major discharge response will be removed and disposed of by a cleanup contractor.

5. INSPECTIONS, TESTING, AND MAINTENANCE

5.1 INSPECTIONS

5.1.1 Control Room Monitoring

Oil discharge detection at ***REG Grays Harbor*** is ***conducted*** by direct visual inspection and ***instrumentation, per WAC 173-180-340(11), (a&b)***. The facility piping system is pressurized (pump fed) and controlled with the DCS that monitors, displays, and records nearly all plant activities. The DCS data is fed from process, storage, and transfer systems to the control room. The control room is staffed continuously with redundant monitors and operators. Monitoring systems include line pressure gauges, flow rate indicators, high and low level alarms on tanks, and indicators on transfer and control valves. Cameras are positioned at each load/unload station and are monitored by operators in the control room.

5.1.2 Monthly Inspections

REG is required to perform inspections of the facility and the storage units to ensure that the facility is maintained in proper condition and the potential for spills is kept to a minimum. Inspections are completed at least monthly and include the following:

- General inspection site walk, including the perimeter (performed on a daily basis and documented on the "shift hand-off sheet").
- Visual inspections of the oil storage areas (tanks and drums); ASTs (connections, piping, valving, exhaust lines, and flanges); sump pumps, oil transfer pumps, hazardous material container storage area and the containers stored therein; equipment fueling areas; truck load/offload areas; rail load/offload areas; and process equipment.
- The inspections are to be focused on the integrity of storage vessels, visible corrosion, and surface staining in the vicinity of material storage and process areas, and signs of concrete deterioration. Checks should include the surface of the containment structures, the inside and outside of the walls, and the interface of the floor and walls to detect any cracks, signs of heaving or settlement, or other structural damage that could affect the ability of the structures to contain oil.
- Visual inspections of the spill response equipment to ensure that the proper materials are available and in good condition.
- Checking for proper labeling on all drums and containers of hazardous substances.

Facility inspection records are entered into the facility electronic tracking software system and/or retained on site in the Engineering, Health, and Safety Library

5.1.3 Additional Inspections

In addition to the regular monthly inspections, the following protocols are adhered to at the facility:

- ASTs are inspected by the maintenance technicians during the emergency generator runs. The inspection protocol has been incorporated into the Preventative Maintenance Program and is completed at least monthly. Records are on file with the maintenance department.
- If a field-constructed aboveground container undergoes a repair, alteration, reconstruction, or change in service that might affect the risk of a discharge or failure

due to a brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture failure or other catastrophe, the container is evaluated for risk of discharge or failure due to brittle fracture or other catastrophe, and as necessary, appropriate action is taken.

- If any oil storage areas or process equipment are taken offline for maintenance or repair and access to the interior of the equipment is available for inspection, an internal inspection is conducted and documented.
- Observers visually examine storage containers and associated fittings, seams, gaskets, piping, and equipment related to oil product storage as these products are used.
- In addition, daily inspections are conducted at operations shift handoff and consist of visually inspecting all tanks for puddles of leaked material or damage, piping and valves for bowing of pipe between supports, evidence of seepage at valves and/or seals, and facility security including integrity of locks and lighting.

5.2 INTEGRITY TESTING

The facility transfer piping integrity testing is documented in the facility Oil/Hazardous Materials Transfer Operations Manual. Pressure vessel relief devices are tested in accordance with API 520 standards***. Specific information on pressure relief devices varies greatly. This information is available in the facility Process Safety Management (PSM) Mechanical Integrity Data, and available upon request***. The facility field-constructed storage tanks and piping were hydrostatically tested at the completion of construction in 2007.

In addition to the above monthly and annual inspections by facility personnel, the shop-constructed ASTs shall be periodically evaluated by an outside certified tank inspector following the Steel Tank Institute Standard for the Inspection of Aboveground Storage Tanks, SP-001, 2005 version, every 10 years. All piping and modifications to piping classified as "hazardous" by the Washington Industrial Safety and Health Act are constructed and tested in accordance with American Society of Mechanical Engineers (ASME) Process Piping guidelines number ASME B31.3. REG uses an internal data base program to schedule/document inspections and preventative maintenance. Pipelines and hoses offsite of the facility leading to the terminals are tested annually as per 33 CFR 156.170. ***Pipelines leading to, and at the terminals are inspected by an API-570 certified third party every 5 years. These inspections are performed per the recommendations set forth in API 570 and include an external visual inspection of: the pipe system supports and hangars, external coatings and/or insulation, exposed pipe surfaces, flanges and connections, bolting, weld seams, and other external components associated with the piping integrity. Non-destructive thickness and integrity testing is performed at this time, via ultrasound. Inspection reports are entered into the facility PSM Program, under Mechanical Integrity. Repairs needed are entered into the facility Computerized Maintenance Management System (CMMS), and addressed within a reasonable amount of time.***

Transfer pipeline valves are inspected for position, condition and function prior to and after every transfer. This inspection is documented via the waterfront valve checklist, which is stored with terminal vessel transfer records. Transfer line valves are also inspected every 5 years, during the API-570 pipeline inspection. The transfer pump used for facility-to-terminal transfers is located in containment within the facility. Any release due to pump failure would be to containment, and not present a threat to waters of the state.

As recommended by the API for field-constructed ASTs, external and internal tank inspections are be conducted in accordance with API-653. Inspections shall be made at the following frequencies:

- External inspection by a qualified inspector at least every 5 years.
- Internal inspection after the first year, inspection at 10 years to determine corrosion rate, and inspection at a maximum of 20 years thereafter.

Tank integrity testing shall be performed by one of the following accepted methods:

- Hydrostatic testing,
- Radiographic testing,
- Ultrasonic testing, or
- Acoustic emission testing.

Internal and external inspections of the field and shop-constructed ASTs were performed in 2012. Integrity testing was performed in 2012, and will be conducted every 5 years thereafter. The Plant Manager, or their designee, shall be responsible for maintaining the tank inspection logs. Records for the tank integrity and pressure tests are retained on site in the facility Engineering, Health, and Safety Library.

5.3 MAINTENANCE

Preventive maintenance is a critical function to ensure that all equipment is properly working at all times to prevent product releases to the environment. Scheduled maintenance duties are to be performed on a regular basis, and in most cases based upon the manufacturer's recommendations.

Maintenance records must be filled out and forwarded to the Plant Manager, who ensures that the records are entered into the facility electronic tracking software system. All plan personnel have a minimum of read-only access to the electronic record tracking system. Maintenance records include the date, time, equipment number, name of maintenance personnel, and a brief explanation of maintenance performed (e.g., replacing hoses, complete overhaul, or inspecting equipment).

6. EMPLOYEE TRAINING

6.1 ACCESS TO PLAN

A complete copy of this SPCC Plan is maintained and located at the facility in the control room to provide immediate access to all facility personnel involved in supervising or implementing oil handling operations. The control room is attended 24 hours a day, 7 days a week.

6.2 SPILL RESPONSE TEAM TRAINING

In order to minimize the likelihood of a product spill caused by human error, all employees who may be involved with product handling operations or are designated as spill response team members receive appropriate training. Training includes facility-specific spill prevention and response training as specified in this Plan. Training for oil handling employees is conducted at least once a year and includes:

- Discharge prevention briefings to ensure adequate understanding of the SPCC Plan, other environmental plans, and standard operating procedures for petroleum products to prevent spills.
- Training on how to use emergency response equipment such as fire extinguishers, absorbent materials, and catch basin covers.
- Yearly SPCC training.

Spill response coordinators also receive First Responder Operations training as identified by 29 CFR 1910.120(q). This training includes, but is not limited to:

- An overview of chemicals present in their workplace and their physical and health effects.
- The location and availability of the written hazard communication program.
- Methods and observation techniques used to identify a spill.
- Proper use of available materials for containment and clean-up of incidental spills of oil or oil products.
- Procedures for using and inspecting the available emergency equipment and supplies.
- Emergency safety procedures to follow if exposed to hazardous chemicals.

In addition to the above, Qualified Individual notification exercises are conducted 3 times per year, and tabletop exercises are conducted annually for the REG spill response team personnel. The exercises are conducted in accordance with Annex 5 of the ICP. Training documents and records are retained on site in the facility Engineering, Health, and Safety Library.

6.3 ALCOHOL AND DRUG USE AWARENESS AND TREATMENT PROGRAM

The REG Grays Harbor Employee Handbook provides training and information materials to all employees on recognition of alcohol and drug abuse; treatment opportunities. The handbook also provides adescription of the facility's existing drug and alcohol treatment programs and a description ofexisting provisions for the screening of employees for alcohol and drug abuse and related workimpairment.

7. FACILITY SECURITY

The entire facility is surrounded by chain link fencing and 24-hour security service and facility lighting is provided. All vehicles and persons entering the facility must pass through the manned guard shack where identification must be presented before authorization to enter the facility can be obtained.

The drain valve for the tank farm containment area is controlled by a pump that cannot be opened/operated without manual activation by facility personnel. In addition, the Track 5 containment area drain valve is locked in the closed position to prevent unauthorized opening.

The electrical starter controls for all oil pumps, transfer pumps, and sump pumps are located in the control room, which is continuously staffed.

After completing a transfer, the hose and transfer piping is blown out using a combination of pressurized, inert gas, low-point draining from within the facility, and pumping via a vac-truck. The facility securely caps or blank-flanges the loading/unloading connections of facility piping ***when not in use. Once capped, only residual material remains in transfer lines.***

8. RECORDKEEPING

Records generated under the SPCC will be maintained as follows:

- Routine, visual inspections conducted per the SPCC or Operations Manual will be kept for 3 years.
- All training and certification records will be kept for 5 years from the date of training.
- Inspection, maintenance, and repair records for pumps, valves, manifolds, and other ancillary equipment used in oil transfers will be kept for 10 years.
- Design, construction, and repair records for storage tanks, pipelines, and all oil transfer equipment testing and repair will be kept for the life of the equipment.

9. REFERENCES

Ecology (Washington State Department of Ecology). 2005. Used Oil Guidance, Tank and Secondary Containment Requirements For Used Oil Processors. Publication Number 05-04-016. November 2005

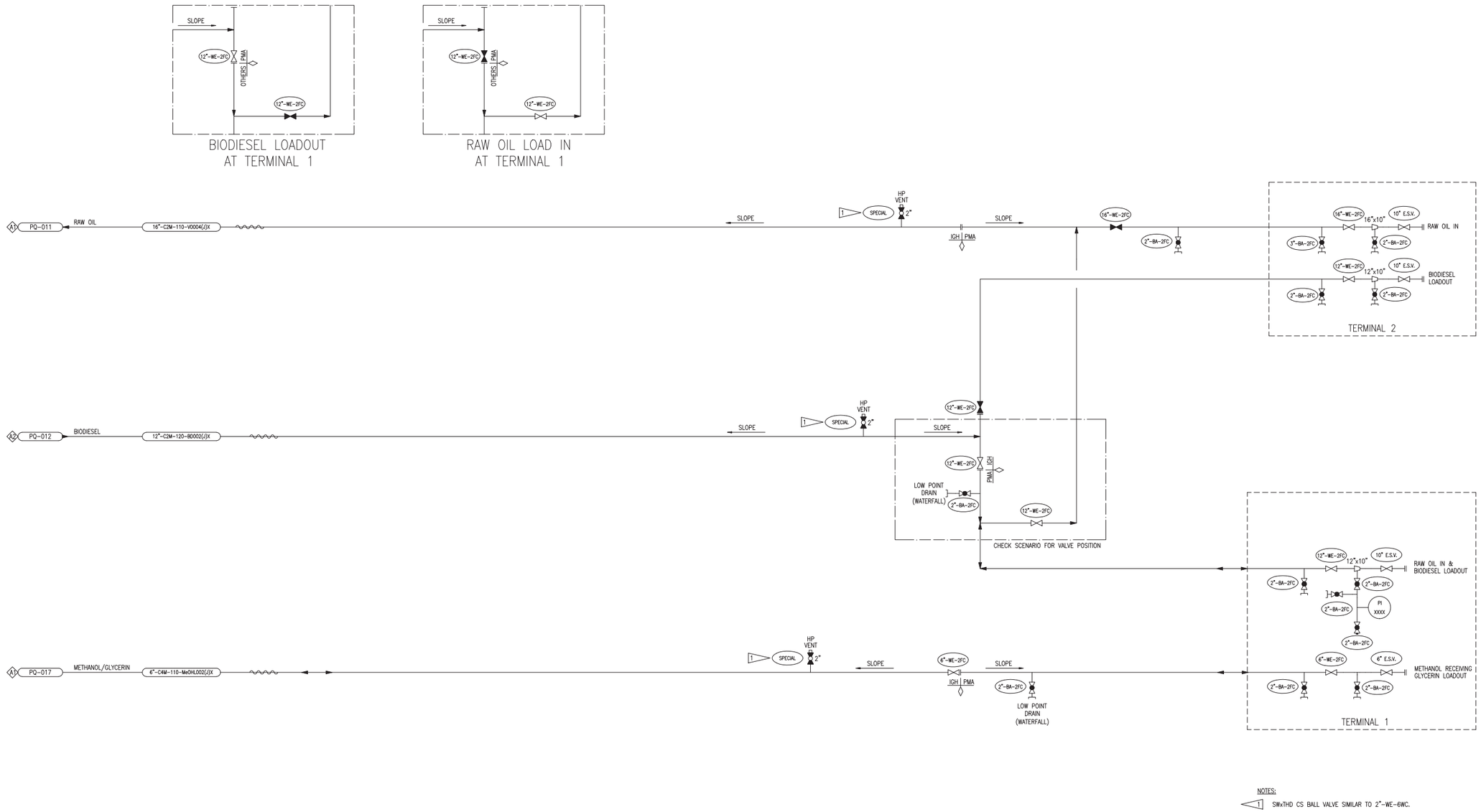
REG (REG Grays Harbor, LLC). Integrated Contingency Plan. Prepared for Grays Harbor LLC, Biodiesel Processing Facility.

REG (REG Grays Harbor, LLC). REG Grays Harbor Employee Handbook. REG Grays Harbor. Hoquiam, Washington. Pages 71 - 76. Revised July 17, 2015.

Polaris (Polaris Applied Sciences, Inc.). 2015. Oil/Hazardous Materials Transfer Operations Manual, Imperium Grays Harbor L.L.C, Biodiesel Processing Facility. Polaris Applied Sciences, Inc. Bainbridge Island, Washington. February 2013.

Appendix A

Piping Diagrams: Vessel Transfer Lines & Drainage System



NOTES:

1. SWxTHD CS BALL VALVE SIMILAR TO 2"-WE-6WC.

No.	REFERENCE	NUMBER
7		
6		
5		
4		
3		
2		
1		

REVISION CODES

- A – PRELIMINARY
- B – REVISION
- C – DESIGN
- D – MATERIAL PROCUREMENT
- E – BID
- O – CONSTRUCTION
- 1,2,3 – NUMERICAL AFTER RFC

No.	DATE	REVISION	DRN.	APPR.
4	12/2/2013	REVISED TERMINAL 1 PIPING – LOAD OUT ON TERMINAL 1	AMF	
3	3 AUG 07	REVISED TERMINAL 2 PIPING – AS BUILT	GEM	DP
2	04APR07	REVISED FOR CONSTRUCTION	FDL	DP
1	22JAN07	REVISED FOR CONSTRUCTION	PST	DP
0	26OCT06	ISSUED FOR CONSTRUCTION	RP	DP

DANIEL PARKER STATE OF WASHINGTON 27050 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10-24-06

Imperium renewables

PARKER, MESSANA & ASSOCIATES, INC.
CONSULTING ENGINEERS
Federal Way / Kennewick

DESIGNED BY: B. FLORES	DATE: 18MAY06
CHECKED BY: D. PARKER	DATE: 16FEB07
APPROVED BY: D. PARKER	DATE: 20FEB07
PROJECT No. 06-020	
SCALE: NONE	

BIODIESEL PROCESSING FACILITY – GRAYS HARBOR

PIER LOADING/UNLOADING – AREA 110
P&I DIAGRAM
PIER No. 1 & No. 2

DRAWING NO. GH-110-PQ-200 | SHT. 1 of 1 | REV. 3

LAST USER: - DATE: - PMA CAD FILE:\

PQ-110 COOLING TOWER BLOWDOWN
4"-C2M-832-SWP003(J)
PQ-091 WATER TREATMENT BACKWASH
6"-J1L-832-SWP004
PQ-084 BOILER BLOWDOWN
3"-J1L-862-SWP001
PLANT SANITARY SEWER
6"-P8L-875-SWR001
SANITARY SEWER SUMP
862-T-2100
IMPERIUM VENDOR
LAHH 0711
LSHH 0711
LS 0710
XS 0712
XA 0712 FAULT
SANITARY SEWER PUMP
862-P-2120
40 GPM | 70' TDH
2 HP | 3450 RPM
4"-P8L-875-SWR002
MANHOLE
6"-P8L-875-SWR003
SLOPE ¼"/FT
EXISTING MANHOLE
TP 03
TO POTW
4"-C4M-864-SWP014
4"-C4M-862-SWP018(J)
SAMPLE
6"-C2M-862-VNT018
ATMOSPHERIC VENT
4"-C4M-862-SWP017(J)
PROCESS SEWER SUMP PUMP No.1
862-P-1830
200 GPM | 50' TDH
7.5 HP | 1800 RPM
PROCESS SEWER SUMP PUMP No.2
862-P-1820
200 GPM | 50' TDH
7.5 HP | 1800 RPM
8"x6"
8"x3"
PLANT PROCESS SEWER
8"-J1L-862-SWP001
WASTE WATER TANK
40,000 GAL.
862-T-2000
LT 0690
LIC 0690
HH @ 100%
H @ 85%
L @ 0%
NaOH
PURGE
COND
H @ 300
CI 0692
PI 0695
CT 0692
CE 0692
TI 0694
TT 0694
TE 0694
TW 0694
H @ 150°F
L @ 30°F
AI 0693
AT 0693
HH @ 10
H @ 9
L @ 6
LL @ 4
PH
SAMPLE
LI 0696
30"
MANWAY
6"
6"-C4M-862-SWP006
EJ-009
6" SS
36" LG.
SAMPLE
6"x4"
4"x3"
WASTE WATER TRANSFER PUMP
862-P-2020
300 GPM | 100 TDH
20 HP | 1800 RPM
4"-C4M-862-SWP007
4"-C4M-862-SWP008
FIQ 0691
H @ 600 GPM
FT 0691
FE 0691
LCV 0690
SAMPLE
4"-C4M-862-SWP008(M)
P8L C4M UG AG
C4M P8L
P8L C4M
8"
SANITARY SEWER
WEST FIRST STREET PUMP STATION
TP 04
2"-C4B-864-SWP018
3"-C4M-864-SWP050
2ND BIODIESEL TRUCK LOAD AREA SUMP PUMP
864-P-2920
15 GPM | 42 TDH
1.5 HP | 1750 RPM
2ND BIODIESEL TRUCK LOAD AREA STORM WATER SUMP
864-SP-2900
LAHH 0697
LSHH 0697
PROCESS SEWER SUMP
862-T-1800
2500 GALLONS
4"-C4M-862-SWP005
2"-C4B-864-SWP009
2"-C4B-864-SWP010
4"-C4M-864-SWP014
4"-C4M-864-SWP015
3"x4"
3"x4"
LAHH 2350
LSHH 2350
GLYCERN TRUCK LOAD AREA SUMP PUMP
864-P-2420
15 GPM | 42 TDH
1.5 HP | 1750 RPM
METHANOL TRUCK UNLOAD AREA SUMP PUMP
864-P-2520
15 GPM | 42 TDH
1.5 HP | 1750 RPM
BIODIESEL TRUCK LOAD AREA SUMP PUMP
864-P-2620
15 GPM | 42 TDH
1.5 HP | 1750 RPM
2"x1.5"
PROCESS AREA SUMP PUMP
864-P-2720
330 GPM | 80' TDH
15 HP | 1750 RPM
METHANOL AREA SUMP PUMP
864-P-2820
170 GPM | 75 TDH
10 HP | 1750 RPM
TANK FARM SUMP PUMP
864-P-2220
750 GPM | 55' TDH
15 HP | 1200 RPM
GLYCERN TRUCK LOAD AREA STORM WATER SUMP
METHANOL TRUCK UNLOAD AREA STORM WATER SUMP
BIODIESEL TRUCK LOAD AREA STORM WATER SUMP
PROCESS AREA STORM WATER SUMP
METHANOL AREA STORM WATER SUMP
TANK FARM COLLECTION AREA
12"x6"
6"-C4M-864-SWP020
6"-C4M-864-SWP013
P8L C4M UG AG
P8L C4M UG AG
864-SP-2400
864-SP-2500
864-SP-2600
864-SP-2700
864-SP-2800
864-SP-2900
2"-C4B-864-SWP011
3"-C4M-864-SWP019
2.5"x3"
RAIL YARD SUMP
RAIL YARD SUMP PUMP
864-P-3120
15 GPM | 20' TDH
0.5 HP | RPM
COURTYARD STORM WATER SUMP
HIGH (LSHH 3150) AND LOW (LSHH 3160) LEVEL SWITCHES
COURTYARD SUMP PUMP
864-P-3120
100 GPM | 60 TDH
5 HP | 1800 RPM
864-SP-3100
864-SP-3100
DEVELOPED AREA RUNOFF
PAVED ROADS
UNPAVED ROADS
BUILDINGS
NON-PROCESS AREAS
SWALES, CATCH BASINS, & u/g CONVEYANCE
POST INDICATION VALVE
18"-P8L-864-SWP008
RAIL HAZARDOUS CONTAINMENT
HIGH FLOW BYPASS DIVERTER
864-T-2310
HIGH FLOW BYPASS
18"-P8L-864-SWP025
XAH 2351
OIL IN SEPARATOR
XSH 2351
OIL/WATER SEPARATOR
864-T-2300
6"-P8L-864-SWP017
18"-P8L-864-SWP016
CATCH BASIN (EXISTING)
TO PORT OF GRAYS HARBOR DISHARGE
TP 11
EXISTING CATCH BASIN

No.	REFERENCE	NUMBER
7		
6		
5		
4		
3		
2		
1		

No.	DATE	REVISION	DRN.	APPR.
7	06/05/15	ISSUED FOR RECORD	HGI	KDM
6	11/07/14	ISSUED FOR REVIEW	SKK	KDM
5	09/19/13	ISSUED FOR RECORD	HGI	KDM
4	3 AUG 07	REMOVED 864-P-3020	GEM	DP
3	27APR07	UPDATED LINE NUMBER	MJK	KFF
2		ADD LSHH-2350, LSHH-0697, XS-0712, CHNG. LSHH-0697, TE-0694	PRB	KFF
0	04APR07	REVISED PER CONSTRUCTION	TVN	DP

Imperium renewables

PARKER, MESSANA & ASSOCIATES, INC.
CONSULTING ENGINEERS
Federal Way / Kennewick

DESIGNED BY: B. FLORES	DATE: 28APR06
CHECKED BY: D. PARKER	DATE:
APPROVED BY: D. PARKER	DATE:
PROJECT No. 06-020/ HGI 30556.00	
SCALE: NONE	

BIODIESEL PRODUCTION FACILITY – GRAYS HARBOR

PLANT UTILITIES – AREAS 862 & 864
P&I DIAGRAM
SEWER SYSTEMS

DRAWING NO. GH-800-PQ-093 | SHT. 1 of 1 | REV. 7

LAST USER: - DATE: - PMA CAD FILE\

Appendix B

Secondary Containment Volume Calculations

Description	Elevation [ft]	Diameter [ft]	Length [ft]	Width [ft]	Shape	Area Source	Unit Area [sq ft]	Quantity	Height [ft]	Volume [cu ft]	Volume [gal]	Comments
TANK FARM												See Note 1
Storage												
Top of berm	18.0					AutoCAD	144,428			282,549	2,113,613	Vol = [($A_{18\ ft\ elev}$ + $A_{16\ ft\ elev}$)/2] x Total Depth. Used for precip freeboard calculation.
Top of tank foundation	16.0					AutoCAD	138,121			136,435	1,020,601	Vol = [($A_{16\ ft\ elev}$ + $A_{15\ ft\ elev}$)/2] x Total Depth. Ramps part of area.
Finished highest ground surface	15.0					AutoCAD	134,748			96,298	720,359	Vol = [($A_{15\ ft\ elev}$ + $A_{14\ ft\ elev}$)/2] x Total Depth. Ramps part of area.
	14.0					AutoCAD	57,848			21,917	163,949	Vol = [($A_{14\ ft\ elev}$ + $A_{13.5\ ft\ elev}$)/2] x Total Depth. Ramps part of area.
	13.5					AutoCAD	29,819			14,656	109,635	Vol = [($A_{13.5\ ft\ elev}$ + $A_{12.6\ ft\ elev}$)/2] x Total Depth. Ramps part of area.
Trench drain (bottom of tank farm)	12.6		1,100	2.5		(L)(W)	2,750		2.0	5,500	41,143	Trench drain 2.5 feet wide, 2 feet deep
Total Tank Farm Storage											4,169,300	
Displacements												
0.1 MG 120-T-1200 foundation	16.0				Octagonal	AutoCAD	681	1	0.8	511	3,821	1 total (height average for ground slope)
0.3 MG 120-T-1100 foundation	16.0				Octagonal	AutoCAD	1,769	1	1.25	2,211	16,541	1 total (height average for ground slope)
0.5 1 MG 120-T-0900 to -1000 foundation	16.0				Octagonal	AutoCAD	2,402	2	1.25	6,005	44,921	2 total - area for one tank is 2,402 sq ft (height average for ground slope)
2. 19 MG 120-T-0100 to -0800 foundation					Octagonal	AutoCAD	6,415	8	1.25	64,150	479,875	8 total - area for one is 6,415 sq ft (height average for ground slope)
8,700 gallon Citric Tank Foundation					Octagonal	AutoCAD	220	1	1.00	220	1,646	1 total (height average for ground slope)
0.1 MG 120-T-1200 Tank		20.0			Circular	(pi)(r^2)	314	1	2.0	628	4,700	1 total (height from 16 ft to 18 ft)
0.3 MG 120-T-1100 Tank		35.0			Circular	(pi)(r^2)	962	1	2.0	1,924	14,394	1 total (height from 16 ft to 18 ft)
0.51 MG 120-T-0900 to -1000 Tank		40.0			Circular	(pi)(r^2)	1,257	2	2.0	5,027	37,601	2 total (height from 16 ft to 18 ft)
2.0 MG 120-T-0100 to -0800 Tank		80.0			Circular	(pi)(r^2)	5,027	8	2.0	80,425	601,619	8 total (height from 16 ft to 18 ft)
8,700 gallon Citric Acid Tank		12.0			Circular	(pi)(r^2)	113	1	2.0	226	1,692	1 total (height from 16 ft to 18 ft)
1% safety factor for smaller tanks & fittings										1,613	12,068	120-D-3000, 120-T-0050, 120-T-1110, 120-T-2008, 120-T-2009, Citric Acid, + misc.
Precipitation Volume at Max Surface Area							*144,428*	*1*	*0.46*	*66,196*	*495,182*	*25 year, 24 hour storm event of 5.5 in. (= 0.46 ft.) WAC 173-303-640(4)(e)*
Total Tank Farm Displacements											1,714,060	Includes precipitation
Available Tank Farm Secondary Containment											2,455,240	gallons
Required Tank Farm Secondary Containment											*2,190,000*	gallons
Excess Tank Farm Secondary Containment Capacity											*265,240*	gallons
Number of Full 275 Gallon Totes Stored in Excess Capacity							51	694		35,457	*265,240*	See Note 1

Description	Elevation [ft]	Diameter [ft]	Length [ft]	Width [ft]	Shape	Area Source	Unit Area [sq ft]	Quantity	Height [ft]	Volume [cu ft]	Volume [gal]	Comments
METHANOL STORAGE AREA												See Note 1
Storage												
Top of Dike	20											See Note 2
Finished highest ground surface (dike bottom)	15					AutoCAD	12,200			61,000	456,312	Total enclosed area (used for precip freeboard calculation)
Area to Step (between finished and sump)	14					AutoCAD	9,142			4,571	34,193	Average depth (6 inches) across sloped area
Elv of Sump Area Slab	13					AutoCAD	2,938			5,876	43,956	Total storage in sump area only (15 to 13 ft)
Displacements												
0.5 MG 120-T-2200 foundation	16					AutoCAD	2,056		1.00	2,056	15,380	1 total (height above finished ground elev)
0.5 MG 120-T-2200 tank		40				(pi)(r^2)	1,257		4.0	5,027	37,601	1 total (height from 16 ft to 20 ft)
0.1 MG 120-T-2100 foundation	16					AutoCAD	681		1.0	681	5,094	1 total (height above finished ground elev)
0.1 MG 120-T-2100 tank		20				(pi)(r^2)	314		4.0	1,257	9,400	1 total (height from 16 ft to 20 ft)
Precipitation Volume at Max Surface Area							*12,200*		*0.46*	*5,592*	*41,829*	*25 year, 24 hour storm event of 5.5 in (= 0.46 ft.) WAC 173-303-640(4)(e)*
Total Methanol Area Storage											534,461	
Total Methanol Area Displacement											109,304	Includes precipitation
Methanol Storage Area Secondary Containment											425,156	gallons, See Note 2
Methanol Storage Area Secondary Containment - 0.5 MG Tank Leak											462,758	gallons, See Notes 4 and 5

RAIL LOAD/UNLOAD												See Note 1
Hazardous Materials Load/Unload Secondary Containment							1,568		1.00	523	3,910	
Concrete swale							1,200		2.0	2,400	17,953	Shortest swale
Concrete swale							1,560		2.0	3,120	23,339	Longest swale
Rail Load/Unload Volume											*41,292*	
Total Precipitation Volume										719	5,376	25 year, 24 hour storm event
Rail Load/Unload Secondary Containment											35,916	

Description	Elevation [ft]	Diameter [ft]	Length [ft]	Width [ft]	Shape	Area Source	Unit Area [sq ft]	Quantity	Height [ft]	Volume [cu ft]	Volume [gal]	Comments
TRUCK LOAD/UNLOAD												*See Note 8*
Pad							600		0.33	67	499	*Smallest of the 4 pads, including 2017 additions*
Pad Catch Basin							6.1		2.0	12	92	
Pipe							0.3		8.0	3	21	
Pump Sump							13		7.5	94	705	
Truck Load/Unload Volume											*1,316*	
Oil Water Separator											4,000	
Total Precipitation Volume										275	2,057	25 year, 24 hour storm event
Truck Load/Unload Secondary Containment											5,316	See Note 7
PROCESS AREA												*See Note 8*
Top of Dike	14.5						*22,278*			*11,139*	*83,324*	*Includes 55-ft x 11-ft expansion area added in 2017*
Bottom of Dike	14											
Trench drain							452		0.5	226	1,689	
Tank Foundations Displacement							*2,037*		0.5	*1,019*	*7,619*	
Process Area Volume											*85,012*	
Process Area Unavailable											*7,619*	
											77,393	
Total Precipitation Volume										10,211	*76,380*	25 year, 24 hour storm event
Process Area Secondary Containment											*1,013*	See Note 5

Notes

1. Shaded sections were not updated as part of the 2017, 2019, or 2021 plan updates.

2. For storage capacity conversions, 4 empty totes are assumed to be equal to 3 full totes. Totes are 51.1 cubic feet (382.3 gallons) in size.

3. The top of the methanol containment dike is at elevation 20 ft 8 in, but the additional 8 inches is not included in the calculated storage volume. This volume is reserved as a safety buffer to off-set the displacement caused by the thickness of the

4. Imperium has hydraulically connected the methanol storage area to the tank farm berm through an overflow notch which provides the additional secondary containment necessary to contain the 500,000 gallon tank and the required

5. Assumes that 0.5 MG tank, if leaking, would have the same liquid level inside tank as outside tank (therefore no interior tank displacement).

6. Process area is hydraulically connected to the tank farm secondary containment through an emergency overflow drain.

7. The smallest load/unload area pad along with the system catch basin, associated sump, stormwater conveyance piping, and oil water separator provide capacity large enough to contain 100 percent of the largest tank truck compartment. The catch basin and associated sump shall be emptied prior to loading or unloading activities.

8. Bolded and italicized numbers were updated as part of the 2017 and 2019 amendments.

Appendix C

Oil Spill Risk Assessment Matrix

I certify that this Oil Spill Risk Assessment Matrix as prepared on **April 12, 2021**, is based on the requirements of Washington Administrative Code (WAC) 173-180-630 (15). It documents the analysis of spill risks for the REG Grays Harbor, LLC (REG) Biodiesel Processing Facility (facility). This Oil Spill Risk Assessment Matrix evaluates potential failure scenarios and methods to address these possibilities. It is to be used in conjunction with the facility Spill Prevention, Control, and Countermeasures Plan, which documents information based on WAC 173-180-630 (11) through (14), including the facility's current:

(11) Maintenance and inspection program

(12) Spill prevention technology currently installed and in use

(13) Measures taken to ensure facility site security

(14) Documentation of spill reporting

Julie Garnet Brandt, PE

As with everything REG does, this oil spill risk assessment was conducted with a commitment to VisionZERO.

VisionZERO is the vision to achieve ZERO injuries, ZERO environmental incidents, and ZERO process safety incidents. This commitment reinforces REG's environmental, safety, and health policy by continually drawing attention to how the actions and behaviors of our employees affect the safety and performance of those around them. VisionZERO also becomes a critical filter that helps REG judge our other continuous improvement initiatives to ensure that safeguards are in place so that people aren't hurt, product isn't spilled, and we maintain our equipment's mechanical integrity.

OVERVIEW

This assessment uses the included oil spill risk matrix to quantify the level of oil spill risk presented by individual scenarios. The level of risk is a function of the worst-case consequences due to a release, and the likelihood of said release occurring. Likelihood is determined by multiplying frequency and probability, as shown in the tables below.

The oil spill risk assessment matrix provides a listing of potential spill scenarios. These scenarios are sorted by category, and by area. Each scenario lists possible events, a numerical rating of likelihood and consequences, as determined per the risk matrix, a list of scenario-specific mitigation items, and a notation indicating if further mitigation is needed to bring the level of risk to an acceptable level.

Both consequences and likelihood have notes in superscript. These notes are listed on the last page of the oil spill risk assessment and provide some insight into how this rating was determined. The listed mitigations are specific to each scenario, and mitigation efforts that applied across the board were omitted unless needed to bring the level of risk to an acceptable level.

REG Grays Harbor has demonstrated a commitment to continually improving our spill risk mitigation practices over the last 13+ years of plan updates and reportable spill-free operations. We are always looking for potential problems and attempting to mitigate them before they occur. This includes using ideas and concepts that stem from this oil spill risk assessment. Some of our more notable efforts include expanding containment, additional paving throughout the facility, constantly improving relevant trainings for both employees and 3rd parties, modifying SOPs to lower the risk of human error/spills, and upgrading equipment to more spill-resistant versions, when possible and practical.

Oil Spill Risk Assessment Matrix

RISK ASSESSMENT GUIDANCE

Likelihood of Occurrence	Potential Consequences: Notable Event 6 Cat 1	Significant Event 5 Cat 2	Highly Significant 4 Cat 3.1	Serious Event 3 Cat 3.2	Extremely Serious 2 Cat 4.1	Catastrophic Event 1 Cat 4.2
Almost Certain 1 (>1 / yr)	Level II 2M	Level II 1M	Level I 1M	Level I 1W	Level I 1D	Level I 1D
Very Likely 2 ($1 - 10^{-1}$ / yr)	Level III 9M	Level II 6M	Level II 3M	Level I 1M	Level I 1W	Level I 1W
Likely 3 ($10^{-1} - 10^{-2}$ / yr)	Level III 2Y	Level III 1Y	Level II 9M	Level II 1M	Level I 1W	Level I 1W
Unlikely 4 ($10^{-2} \cdot 10^{-4}$ / yr)	Level IV	Level IV	Level III 5Y	Level III 5Y	Level II 1Y	Level I 1M
Very Unlikely 5 ($10^{-4} \cdot 10^{-6}$ / yr)	Level IV	Level IV	Level IV	Level IV	Level III 5Y	Level II 1Y
Extremely Unlikely 6 (<<10^{-6} / yr)	Level IV	Level IV	Level IV	Level IV	Level IV	Level III 5Y

Potential Consequences			
Level	Gallons To Water	Gallons To Land	Gallons To Containment
1	> 100	> 1000	X
2	10 - 100	100 - 1000	X
3	< 10	42 - 100	X
4	Sheen	10 - 42	X
5	X	< 10	X
6	X	< 1	> 0.1

Descriptor	Qualitative Description	Likelihood Factor (per yr)
Almost Certain	Will occur at least once a year	>1
Very Likely	Very likely to occur at least once during a 10 year period of operation of the facility	$1 - 10^{-1}$
Likely	Likely to occur at least once during the operating life of the facility	$10^{-1} - 10^{-2}$
Unlikely	Known to have happened periodically in small industries or more often in large industries	$10^{-2} - 10^{-4}$
Very Unlikely	Has occurred somewhere in the world in all related industries	$10^{-4} - 10^{-6}$
Extremely Unlikely	Could theoretically occur but not aware of any instances	$<<10^{-6}$

- Use Frequency X Probability guide below to assist in determining per annum likelihood for complex events
- Matrix not suitable for assessment of aggregate risk from several events

Guide for Determining Likelihood

Likelihood = Frequency X Probability
Frequency = frequency per annum of event occurring
Probability = Probability of consequences being realized

Frequency	Value
Potentially many times per year	1
Occurs several times in a working experience; 10% chance per year	10-1
Infrequent, but not surprising, 1% chance per year	10-2
Very infrequent, 0.1% chance per year	10-3
Theoretically possible, but highly unlikely	10-4

Probability	Value
Certain initiation; no mitigation, no effective intervention	1
10% initiated; 90% mitigation, 90% effective response	0.1
1% initiated, 99% mitigation, 99% effective response	0.01
0.1% initiated, 99.9% mitigation, 99.9% effective response	0.001
Highly improbable, even if initiated	0.0001

Production and Storage (Tank Farm, Process Area, Filter Press Building)	Possible Events	Likelihood	Conse-quences	Current Risk Level	Mitigation 1	Mitigation 2	Mitigation 3	Further Mitigation Needed
Pumps								
Construction & Materials	Pump body failure, pump connection/gasket failure	5[*2 *3]	6[*1]	IV	Regular Inspection & vibration testing	Construction Standards	Containment	N
Inspection & Maintenance		4	6[*1*17]	IV	CMMS	Containment	Vibration analysis	N
Operation/Human Error	Pump is activated unintentionally with valving closed	3	6[*4 *11]	III	Valving	MAWP > Possible Pressure	Containment	N
Leak Detection/Overfill Protection	N/A							
Valves								
Construction & Materials	Valve body failure	4[*5]	6[*1]	IV	Construction Standards	Containment	Not seen in 12+ years of Ops.	N
Inspection & Maintenance	N/A, Manual valves repaired as needed.							
Operation/Human Error	Valving alignment error, Opens port on storage tank	4	6[*1 *22]	IV	Containment	Double block	Overfill Interlocks	N
Leak Detection/Overfill Protection	Tank overfills	4[*24]	6[*1*23]	IV	Containment	Interlock	Alarm	N
Piping								
Construction & Materials	Piping failure due to improper material selection	4[*5]	6[*1]	IV	Construction Standards	Containment		N
Inspection & Maintenance	Individual fails to observe issue with a pipe	4[*25 *21]	6[*1]	IV	4 x Day rounds	1 x Month Visual	Like Service	N
Operation/Human Error	N/A							
Leak Detection/Overfill Protection	N/A							
PSVs (Pressure Safety Valves)								
Construction & Materials	N/A							
Inspection & Maintenance	N/A Oil storage tanks 100-800 vent to atmosphere at ground level in tank farm. T 100-1000 have a PSV inspected and maintained per API 521.							
Operation/Human Error	N/A							
Leak Detection/Overfill Protection	N/A							
Tanks								
Construction & Materials	Oil storage tanks were built per API 650, and are up to date on internal and external inspections	5	6	IV	In containment	API 650	Inspections	N
Inspection & Maintenance	Oil tanks are inspected per API 510	5[*25]	6[*1]	IV	API 510	5 x Day rounds	1 x Month Visual	N
Operation/Human Error	N/A Any human issue with a tank would at worst result in a product/production issue.							
Leak Detection/Overfill Protection	Tank is overfilled	5	6[*1]	IV	High Alarm	High High interlock/alarm	5 min+ time to overflow post high high	N

Transfers: Truck Rack	Possible Events	Likelihood	Conse-quences	Current Risk Level	Mitigation 1	Mitigation 2	Mitigation 3	Further Mitigation Needed
Pumps	Pumps feeding the loadouts are located within the tank farm containment. Please see tank farm: pumps							
Valves								
Construction & Materials	Valve failure allows for material pass-through	5[*5 *26]	6[*27 *28]	IV	Construction Standards	Pump not Active	Containment	N
Inspection & Maintenance	N/A							
Operation/Human Error	A valving misalignment misdirects or stops the flow of material, nothing happens due to the presence of a dry break fitting.	N/A						
Leak Detection/Overfill Protection	N/A							
Piping (Including Loading Arms)								
Construction & Materials	Piping failure due to compatibility issues	5[*5]	5[*26 *28]	IV	Material Selection	Trained Individual	Inactive pump	N
Inspection & Maintenance	Individual fails to observe issue with a pipe	4[*25]	6[*1]	IV	5 x Day rounds	1 x Month Visual	-	N
Operation/Human Error	Truck drives away with loading arm still attached	4[*37]	6[*1 *26]	IV	Inactive Pump	Dry Break Fitting	Wheel Chocks	N
Leak Detection/Overfill Protection	N/A							
PSVs (Pressure Safety Valves)	No PSVs in or near the truck loadout that are not assessed elsewhere.							
Tanks (Tanker Trucks)								
Construction & Materials	Tanker truck compartment fails.	6[*30]	6[*27, *28]	IV	Observer Present	Containment	DOT Requirements	N
Inspection & Maintenance	Maintenance issue with tanker beyond the control of REG	4	6[*27, *28]	IV	Observer Present	Containment	-	N
Operation/Human Error	See Tanks, Overfill							
Leak Detection/Overfill Protection	Tanker is filled beyond capacity.	6[*29]	6[*27, *28]	IV	Scully overflow preventer	Observer Present	Containment	N

Transfers: Rail Yard	Possible Events	Likelihood	Conse-quences	Current Risk Level	Mitigation 1	Mitigation 2	Mitigation 3	Further Mitigation Needed
Pumps	Pumps for the railyard are located within the tank farm, or full containment. Please see tank farm: pumps							
Valves								
Construction & Materials	Valve body failure	5*5	6*1	IV	Construction Standards	Containment	Pump not on unless loading	N
Inspection & Maintenance	N/A							
Operation/Human Error	N/A, header valves are just upstream of hose connections							
Leak Detection/Overfill Protection	N/A							
Piping (Including Hoses)	Note: tank farm piping is contained in a trench that connects to a containment sump. This section will deal with hoses.							
Construction & Materials	Incompatible hose/transferred material	5*31	4	IV	Distinct hoses for hazmat/ bio & oil			N
Inspection & Maintenance	Hose failure due to unobserved issue.	4*32 *34	5*33	IV	Hoses inspected visually & Pressure tested Yearly	Observer present during transfer ramp up	Hoses pressure tested yearly, strapping around camlock ears	N
Operation/Human Error	Hose disconnects from header or rail car due to human error or cam lock issues.	4*32 *34	5*33	IV	Hoses inspected visually & Pressure tested Yearly	Observer present during transfer ramp up	Hoses pressure tested yearly, strapping around camlock ears	N
Leak Detection/Overfill Protection	N/A							
PSVs (Pressure Safety Valves)	No PSVs in or near the rail yard system not covered elsewhere							
Tanks (Rail Car)								
Construction & Materials	N/A Constructed to DOT requirements, we only offload haz-mat.							
Inspection & Maintenance	N/A Inspected yearly to DOT requirements, inspected pre-transfer							
Operation/Human Error	N/A Human error covered by leak detection/overfill							
Leak Detection/Overfill Protection	Rail car overfilled due to improper loadout volume entered	5*35 *36	4*C	IV	Max load set in system	Max load safety factor	Meter proving, every 6 months	N

Transfers: Term. 1 & 2	Possible Events	Likelihood	Conse-quences	Current Risk Level	Mitigation 1	Mitigation 2	Mitigation 3	Further Mitigation Needed
Pumps								
Construction & Materials	Pump body failure, pump connection/gasket failure	5 *2	6 *1	IV	Regular Inspection & vibration testing	Construction Standards	Containment	N
Inspection & Maintenance		4 *3	6 *1	IV	CMMS	Containment	Vibration analysis	N
Operation/Human Error	Pump is activated unintentionally with valving set to feed material to Terminal 1/2	4 *7	6 *4 *11	IV	Valving	MAWP > Possible Pressure	Containment	N
Leak Detection/Overfill Protection	N/A							
Primary Containment	Pump body failure, see Pumps, C&M line							
Valves								
Construction & Materials	Valve body failure	5 *5	6 *6 *9 *11	IV	Construction Standards	Redundant Valving	Containment	N
Inspection & Maintenance		4 *3 *12 *20	6 *6 *9 *11	IV	5 Year API Inspection	Pre-Transfer Cycling		N
Operation/Human Error	Valving alignment error	4 *7 *8	6 *4 *11	IV	Valve alignment checklist	Training		N
Leak Detection/Overfill Protection	N/A							
Primary Containment	Valve body failure, see Valves, Construction & Materials. Gasket failure during material transfer.	3	6 *9 *10 *11	IV	Containment	Empty Line	Observer Present	N
Piping (Including Transfer Hose)								
Pumps	Deadhead pump creates overpressure event	4	6 *13	IV	MAWP > Possible Pressure			N
Construction & Materials	Pipeline failure due to corrosion, material incompatibility, etc.	6 *5	3 *A *11	IV	Material Selection Std.	Pressure Testing & Inspection	Line Walks Every 15 Min,	N
Inspection & Maintenance	Failure to observe/correct damaged pipe causes catastrophic release	6 *3 *16	3 *A *11	IV	Material Selection Std.	Pressure Testing & Inspection	Agency Inspection	N
Operation/Human Error	Failure to fully connect the transfer hose.	5 *18	4 *19 *B	IV	Slow ramp up	2nd Connection Check	Training	N
Leak Detection/Overfill Protection	Requires a second failure point to be an issue. See construction and materials.				Line Walks Every 15 Min	Observer Present		
Primary Containment	Pipeline failure, see Piping, Construction & Materials and Inspection & Maintenance.							
PSVs (Pressure Safety Valves)	No PSVs installed on T 1/2 lines. *13							

Transfers: Term. 1 & 2	Possible Events	Likelihood	Conse-quences	Current Risk Level	Mitigation 1	Mitigation 2	Mitigation 3	Further Mitigation Needed
Tanks	No tanks at T 1/2, overfill considered for vessel compartments only							
Pumps	N/A							
Construction & Materials	N/A							
Inspection & Maintenance	N/A							
Operation/Human Error	N/A							
Leak Detection/Overfill Protection	Vessel compartment overflows during transfer	5*21	4*B	IV	Levels monitored by crew	DOI Procedure/ Load Plan		N
Primary Containment	N/A							

Oil Spill Risk Assessment Matrix

	NOTES
General	This risk assesment quotes both Imperium Grays Harbor (IGH) & REG design specifications as the facility was built under IGH and is being maintained and expanded under REG. Information in the assessment matrix has been written as the plant is built, and future mitigations will identified for plant updates and documented in comments.
1	Pumps/valves/piping are in tank farm containment. A release would result in a loss of material to secondary containment.
2	Per IGH/REG Pump Specifications: 1.1. Design - All pumps shall conform to the provisions of ASME B73.1 (ANSI) or API 610 (API) latest editions and addenda.
3	Preventative maintenance is set and tracked via the CMMS. The outbound charge pumps are part of the REG vibration analysis program.
4	Header flange at terminals is capped. There are 2+ valves that are closed upstream of the headers when not actively transferring.
5	Style/materials selected using the IGH & REG pipe/valving specifications.
6	Redundant valving will only allow a loss of material to secondary containment.
7	REG GH completes a valving position checklist prior to every transfer.
8	TPICs undergo 40+ hours of hands on training with an experienced TPIC.
9	Terminal valving is over 400+ gal containment
10	line is drained after every transfer
11	TPIC present on terminal during transfer.
12	Valving is inspected by a 3rd party every 5 years as part of an API 570 inspection.
13	Max allowable working pressure (MAWP) of line greater then possible pumping pressure, per REG Gig Harbor Operations Manual
14	Piping is pressure tested to 1.5 MAWP yearly
15	API 570 Inspection conducted every 5 year
16	Maintenance required by law/regulation, checked yearly by outside agency.
17	PSV in service that will release to secondary containment.
18	TPIC oversees and double checks connections/gaskets
19	Slow ramp up of transfer to check for leaks
20	Valving is cycled and visually inspected by maintenance prior to every transfer
21	Piping in like service has demonstrated no issues in the last 14 years
22	Double block minimizes or eliminates the chance of release
23	Tank(s) is(are) equipped with a high interlock that stops flow
24	Tank(s) is(are) equipped with high alarm that sounds in the control room
25	Visual inspections include 5x a day rounds by Operator & 1x a month visual inspection by EHS. Piping inspected per API 570. Most tank farm piping is class 4, and does not require regular thickness testing.
26	Pump is not activated unless there is an active offload
27	Containment leads to OWS, allows for 5K gal + of oil storage
28	Trained individual always present during offloads
29	Scully interlock system present on every tanker truck
30	Tankers built to Department of Transportation (DOT) requirements
31	Hoses for each material type are visually different. Rail yard oil/bio hoses are distinctly different due to appearance and weight.
32	Hoses pressure tested to 1.5 MAWP, rail bio/oil hoses tested pneumostaticly to 1.1 MAWP
33	Trained individual present during start of transfer
34	Hose visually inspected prior to each transfer
35	Safety factor of 96% built in to volume entry
36	Max rail car volume built in to Dearman loadout control system
37	Has not happened once in 13 years of operation
A	7000 GPM x 15 Min. leak detection = 105,500 Gal. to earth or waters of the state
B	Small amount of material to waters of the state possible
C	Volume of load lost due to overfill likely to be extremely small, due to controls built in to loadout system. Material would be lost to gravel.